96-41

IXTOC I POLLUTION COMPENSATION—SHIPBOARD ASBESTOS EXPOSURE—MARPOL PROTOCOL

HEARINGS

BEFORE THE

SUBCOMMITTEE ON
COAST GUARD AND NAVIGATION

AND THE

SUBCOMMITTEE ON FISHERIES AND WILDLIFE
CONSERVATION AND THE ENVIRONMENT

OF THE

COMMITTEE ON
MERCHANT MARINE AND FISHERIES
HOUSE OF REPRESENTATIVES

NINETY-SIXTH CONGRESS

ON

THE IXTOC I OIL POLLUTION COMPENSATION ACT OF
1979—H.R. 5577, H. CON. RES. 188

DECEMBER 6, 1979

SHIPBOARD ASBESTOS EXPOSURE

JANUARY 24, FEBRUARY 12, 1980

MARPOL PROTOCOL—H.R. 6665

MAY 8, 1980

Serial No. 96–41

Printed for the use of the
Committee on Merchant Marine and Fisheries

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IXTOC I OIL POLLUTION COMPENSATION ACT OF 1979

THURSDAY, DECEMBER 6, 1979

House of Representatives, Committee on Merchant Marine and Fisheries, Subcommittee on Coast Guard and Navigation, and the Subcommittee on Fisheries and the Wildlife Conservation and the Environment,
Washington, D.C.

The subcommittee met at 10 a.m., in room 1302, Longworth House Office Building, Hon. John B. Breaux presiding.

Present: Representatives Breaux, Biaggi (Chairman of the subcommittee), de la Garza, Oberstar, Hughes, Melvin Evans, and Forsythe.

Also present: Representatives Donnelly and Wyatt.

Staff present: Ricardo A. Ratti, Larry Mallon, Cyndy Wilkinson, Sid Wallace, George Mannina, and John Bruce.

Mr. BREAUX. The subcommittee will please come to order.

Congressman Biaggi, I would like the record to show, is on his way over here coming from another meeting and will be joining us very shortly, but I think it is appropriate that we go ahead and get the hearing started.

The Subcommittee on Fisheries and Wildlife Conservation and the Environment is vitally interested in the natural resources of the gulf coast and the people who depend on those resources for their livelihood and recreation. The Ixtoc I oil spill represents an imminent threat to the gulf coast and a long-range potential for harm to the entire Gulf fishery.

The hearings which we held in Corpus Christi, in September of this year highlighted these problems. The particular concern, of course, is the question of relieving the immediate economic losses suffered by the victims of the spill.

Chairman Biaggi, in his statement, which will be submitted for the record, posed a number of hard questions of public policy which must be answered before the legislation before the subcommittees can serve as an effective method of dealing with the Ixtoc disaster. In the context of the already reported comprehensive oil spill liability and compensation bill, H.R. 85, the legislation before us is an interim response to an unprecedented environmental disaster.

I hope the witnesses today will be able to help us determine whether or not the obvious and anticipated consequences of the Ixtoc spill warrant the special consideration it will receive if the legislation before us is enacted into law.

Just prior to the opening of the hearing, I was handed a statement of support for the legislation from the majority leader, Congressman Jim Wright of Texas, and I would ask unanimous consent that that statement be included in the record at this point as well as the statement of the chairman of the Subcommittee on Coast Guard, Congressman Biaggi.

Also, copies of the bills and departmental report will be included in the record.

[The following were received for the record.]

CONGRESS OF THE UNITED STATES,
OFFICE OF THE MAJORITY LEADER,
Washington, D.C., December 5, 1979.

Hon. MARIO BIAGGI,
Chairman, Subcommittee on Coast Guard and Navigation,
House of Representatives, Washington, D.C.

DEAR MARIO: With additional hearings scheduled tomorrow, I would like to let you know about my interest in H.R. 5577, introduced by Joe Wyatt, which authorizes the Secretary of Transportation to provide compensation for economic loss resulting from oil pollution by the blowout of Ixtoc I.

Since this disaster did not occur on our Outer Continental Shelf, none of our existing disaster compensation plans will provide for the economic losses suffered by the people of Texas who live or own businesses in the affected area. Nevertheless, I believe that our government has a responsibility to help these victims. While we do not have a system in place to insure that the parties at fault, individually or collectively, will pay the claims, the principle that those damaged by oil pollution be compensated is firmly established in law. Since our lack of foresight left us without coverage for this unique situation, it seems clear to me that the United States has a duty to provide compensation to the victims of this oil spill whether the guilty party pays up or not.

As you are I'm sure aware, the compensation plan in the bill is patterned after provisions in the Outer Continental Shelf Lands Act Amendments of 1978, for which regulations already have been written. The bill would authorize a maximum of $80 million in compensation for certain damage claims.

This legislation would also authorize funding to establish a saltwater fish hatchery, which is needed to offset the probable damage to red drum larvae. It is my understanding that testimony has already been given by Charles Travis of the Texas Parks and Wildlife Department during field hearings by the Merchant Marine and Fisheries Committee on September 8. I am very supportive of this grant.

Mario, I am pleased that your Subcommittee along with the Subcommittee on Fisheries, Wildlife Conservation, and the Environment is holding hearings on this important legislation. It is my hope that markup on the bill will be scheduled as soon as possible. This is an urgent matter and needs early attention.

With warmest and best wishes.

Sincerely,

JIM WRIGHT.

STATEMENT BY HON. MARIO BIAGGI, CHAIRMAN, SUBCOMMITTEE ON COAST GUARD AND NAVIGATION

Good morning. The combined Subcommittees on Coast Guard and Navigation, and Fisheries and Wildlife Conservation and the Environment are meeting this morning to receive comment and testimony concerning H.R. 5577. This bill authorizes the Secretary of Transportation to provide compensation for economic loss caused by the blowout of Ixtoc I in the Bay of Campeche, Mexico on June 3, 1979.

Today's hearing follows extensive field hearings conducted by the full Committee on Merchant Marine and Fisheries and the Subcommittee on Water Resources of the Committee on Public Works and Transportation in Corpus Christi, Texas on September 8th and 9th, 1979. These earlier hearings assessed the overall impact of the Ixtoc I spill and resultant oil pollution of the texas coast and offshore waters of the Gulf of Mexico. They also provided an opportunity for on-scene, real-time oversight of the conduct of oil spill cleanup and containment, monitoring, and damage assessment activities under the national oil and hazardous substances pollution contingency plan.

This hearing will consider:

(1) The adequacy of existing remedies under international and domestic law to compensate victims for damage caused by the Ixtoc I spill;

(2) The need for special statutory relief through the consolidation of claims and compensation of victims for oil spill damage from this spill;

(3) The conduct of economic and environmental damage assessment undertaken following this spill; and

(4) The need for specific mitigative measures to avoid or reduce consequential damages arising out of the oil spill.

The record developed in this proceeding will provide a basis for determining the need for some type of interim compensation legislation in this instance. However, since this legislation is unique in that it is addressed to the victims of one specific incident, it gives rise to several critical questions that must be responded to.

What distinguishes the Ixtoc I spill from other natural or man-made occurrences that the Federal Government should compensate victims for claims arising out of this incident?

What public policy goal is served by legislation for the relief of persons injured by a catastrophic oil spill—with the general public bearing the financial burden?

Why should we preempt the normal course of judicial fact-finding and ultimate determination of liability and damage issues in the international and domestic context?

What legal theory or policy principle provides the basis for the Federal Government's compensating claimants for damages arising out of an oil spill occurring on the Outer Continental Shelf of the Republic of Mexico?

Does this legislation constitute a statutory waiver of sovereign immunity and acknowledgment of fault on the part of the Federal Government for either taking some action or failing to take some action to seek compensation of victims damaged by this spill from the Mexican Government or private entitites involved?

Or does it constitute an attempt to consolidate claims and provide prompt compensation of victims in order to facilitate ultimate international resolution of pending claims with the Republic of Mexico through subrogation, arbitration, or bilateral agreement?

This subcommittee is, of course, very sympathetic to the persons who have suffered losses due to the Ixtoc I oil spill. We are aware that these losses have been through no fault of their own. That sympathy for victims has been the chief driving force in this subcommittee's attempts over the past several years to enact a comprehensive oil spill liability and compensation scheme. It is worth nothing that, if our efforts had been successful, there would be no need for this legislation. The victims of this spill would have been protected by that legislation.

We were not successful, however; and, as a result, we are faced with a different problem. While the superfund legislation would provide compensation to victims of all oil spills from a fund contributed to by, in effect, all oil users, this legislation would compensate only the victims of a particular spill—the compensation to come from the Treasury.

These basic differences give rise to the questions I have posed. I hope that today's hearing will answer them.

I

96TH CONGRESS
1ST SESSION

H. R. 5577

To authorize the Secretary of Transportation to provide compensation for economic loss resulting from oil pollution caused by the blowqut of Ixtoc I, Bay of Campeche, Mexico.

IN THE HOUSE OF REPRESENTATIVES

OCTOBER 12, 1979

Mr. WYATT (for himself, Mr. DE LA GARZA, Mr. MURPHY of New York, Mr. ROBERTS, Mr. BREAUX, Mr. GONZALEZ, Mr. PICKLE, Mr. ECKHARDT, Mr. LOEFFLER, Mr. DONNELLY, and Mr. LOWRY) introduced the following bill; which was referred jointly to the Committees on Merchant Marine and Fisheries and Public Works and Transportation

---

A BILL

To authorize the Secretary of Transportation to provide compensation for economic loss resulting from oil pollution caused by the blowout of Ixtoc I, Bay of Campeche, Mexico.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "Ixtoc I Oil Pollution Compensation Act of 1979".

COMPENSATION OF CLAIMS

SEC. 2. (a)(1) Subject to paragraph (2), the Secretary of Transportation shall provide compensation to any United States claimant for any economic loss described in section 303(a)(2) of the Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1813(a)(2)), arising out of, or directly resulting from, oil pollution caused by the discharge of oil in connection with the blowout of Ixtoc I in the Bay of Campeche, Mexico, on June 3, 1979.

(2) The Secretary may provide compensation under paragraph (1) only to the extent that funds are appropriated to carry out the provisions of this Act.

(b) The Secretary shall provide compensation under subsection (a) for any claim presented in accordance with this Act based on the standards used by the Secretary to provide compensation for comparable claims asserted by United States claimants under paragraph (2), (3), (4), or (5) of section 303(b) of the Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1813(b)) and presented to the Offshore Oil Pollution Compensation Fund established in section 302(a) of such Act.

(c)(1) The Secretary may promulgate regulations to establish procedures for the presentation of claims for compensation under subsection (a) and to require that documents be transmitted in support of any such claim.

(2) The Secretary shall advertise or otherwise notify potential United States claimants of such procedures and such documents. Any advertisement by the Secretary under this paragraph shall continue for a period of not less than thirty days.

SETTLEMENT OF CLAIMS

SEC. 3. (a) If the Secretary—

(1) denies all liability for a claim for compensation under section 2(a), for any reason, or

(2) does not settle such claim by payment to the claimant within sixty days after the later of the date on which such claim is presented to the Secretary or the date on which the Secretary commences to advertise under section 2(c)(2),

then the claimant involved may resubmit such claim to the Secretary for decision in accordance with section 554 of title 5, United States Code, or may elect to commence an action against the Secretary in an appropriate district court of the United States in lieu of resubmitting such claim to the Secretary for decision. An election to commence such action shall be irrevocable and exclusive.

(b) Subsections (g), (h), and (i) of section 307 of the Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1817) shall apply with respect to the settlement of claims for compensation under section 2(a), except that—

(1) any reference in such subsections to the "Fund", other than a reference described in paragraph (2), shall be deemed to be a reference to the Secretary,

(2) any reference in such subsections to a claim "against the Fund" shall be deemed to be a reference to a claim for compensation under section 2(a), and

(3) any reference in such subsections to "subsection (f)" of section 307 of the Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1817) shall be deemed to be a reference to subsection (a) of this section.

LIMITATION ON CLAIMS

SEC. 4. No claim for compensation under section 2(a) may be presented, and no action may be commenced with respect to any claim for compensation under such section, unless such claim is presented to the Secretary before the earlier of the expiration of the three-year period beginning on the date of the discovery of the economic loss for which such claim is made or the expiration of the six-year period beginning on the date of the incident which resulted in such economic loss.

SUBROGATION

SEC. 5. The Secretary shall be subrogated to all rights, claims, and causes of action of any claimant for economic loss for which the Secretary has paid such claimant compensation under this Act.

JURISDICTION AND VENUE

SEC. 6. (a) The district courts of the United States shall have original and exclusive jurisdiction of all controversies arising under this Act, without regard to the citizenship of the parties or the amount in controversy.

(b) Venue shall lie in any district in which the injury complained of occurred, or in which the defendant resides, may be found, or has his principal office.

RELATIONSHIP TO OTHER LAW

SEC. 7. (a) Any person who receives compensation under this Act for an injury shall be precluded from recovering compensation under any other Federal or State law for the same injury. Any person who receives compensation under any other Federal or State law for an injury shall be precluded from receiving compensation under this Act for the same injury.

(b) This Act shall not be interpreted to preempt the field of liability, or to preclude any State from imposing additional requirements or liability, for any discharge of oil from Ixtoc I in the Bay of Campeche, Mexico, resulting in injury within the jurisdiction of such State.

GRANT FOR SALTWATER FISH HATCHERY

SEC. 8. (a) The Secretary shall make a grant in an amount not to exceed $6,000,000 to the Texas Parks and Wildlife Department of the State of Texas for the construction and operation of a saltwater fish hatchery.

(b) The amount of any compensation payable to the State of Texas under section 2(a) for economic loss in connection with an injury to the saltwater fisheries shall be reduced by the amount of the grant made under subsection (a).

DEFINITIONS

SEC. 9. For purposes of this Act and for purposes of applying to claims for compensation under section 2(a) the provisions of the Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1801 et seq.) incorporated in this Act by reference—

(1) the term "claim" shall have the meaning given it in section 301(17) of the Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1811(17)),

(2) the term "damages" means compensation sought by any person suffering any direct and actual injury proximately caused by a discharge of oil from Ixtoc I in the Bay of Campache, Mexico,

(3) the term "discharge" shall have the meaning given it in section 301(18) of the Outer Continental

Shelf Lands Act Amendments of 1978 (43 U.S.C. 1811(18)),

(4) the term "incident" means any occurrence or series of related occurrences, involving Ixtoc I in the Bay of Campeche, Mexico, which causes or poses an imminent threat of oil pollution,

(5) the term "oil" shall have the meaning given it in section 301(13) of the Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1811(13)),

(6) the term "oil pollution" shall have the meaning given it in subparagraph (A) or subparagraph (B) of section 301(9) of the Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1811(9)),

(7) the term "person" shall have the meaning given it in section 301(3) of the Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1811(3)), except that such term shall not include any governmental entity of the United States,

(8) the term "Secretary" means the Secretary of Transportation,

(9) the term "State" shall have the meaning given it in section 301(12) of the Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1811(12)),

(10) the term "United States" shall have the meaning given it in section 301(12) of the Outer Continental Shelf Lands Act Amendments of 1978 (43 U.S.C. 1811(12)), and

(11) the term "United States claimant" means any person residing in the United States, or the government of a State or a political subdivision of a State.

AUTHORIZATION OF APPROPRIATIONS

SEC. 10. (a) There is authorized to be appropriated $80,000,000 to carry out the provisions of this Act other than section 9.

(b) There is authorized to be appropriated $6,000,000 to carry out section 9.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

RECEIVED
DEC 21 1979
JAN 2 1980
COMMITTEE ON MERCHANT MARINE
AND FISHERIES

THE ADMINISTRATOR

Honorable John M. Murphy
Chairman, Committee on Merchant
Marine and Fisheries
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

This is in response to the request of the Committee on Merchant Marine and Fisheries for the views of the Environmental Protection Agency on H.R. 5577, a bill to provide compensation for economic loss resulting from oil pollution caused by the blowout of Ixtoc I, Bay of Campeche, Mexico.

As we have indicated in the past, the Environmental Protection Agency is opposed to a piecemeal legislative response to significant releases of oil or hazardous substances into the environment. We believe it is far preferable to establish a comprehensive mechanism, as in embodied in the Administration's proposal, H.R. 4566, to deal with such incidents, both as to emergency response and compensation of injured parties.

Under H.R. 4566, "The Oil Spill, Hazardous Substances, and Hazardous Wastes Response, Liability and Compensation Act of 1979," compensation for such incidents would be provided from a fund comprised primarily of oil and chemical industry fees with a small percentage of funds from general appropriations. To the extent the specific responsible party cannot be held liable, we feel this is a more appropriate means of compensation than a system using only general taxpayer revenues. In addition, if such legislation were in place, injured parties would be able to obtain more immediate compensation for certain economic loss, rather than having to suffer financial hardships while seeking redress through the courts or awaiting a legislative response.

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REP. JOHN M. MURPHY

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COMMITTEE ON MERCHANT MARINE
AND FISHERIES

Although we sympathize with the unusual problems faced by the parties damaged by the oil pollution resulting from the Campeche Bay blowout, we are opposed to passage of H.R. 5577. Such legislation represents a perpetuation of ad hoc responses, which we believe would seriously undermine efforts to enact badly needed comprehensive legislation.

The Office of Management and Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration program.

Sincerely,

Douglas M. Costle

United States Department of Justice

ASSISTANT ATTORNEY GENERAL
LEGISLATIVE AFFAIRS
WASHINGTON, D.C. 20530

DEC 05 1979

Honorable Mario Biaggi
Chairman, Subcommittee on
Coast Guard and Navigation
House of Representatives
Washington, D. C. 20515

Dear Mr. Chairman:

This responds to your request for the views of the Department of Justice on H.R. 5577, a bill "To authorize the Secretary of Transportation to provide compensation for economic loss resulting from oil pollution caused by the blowout of Ixtoc I, Bay of Campeche, Mexico."

H.R. 5577 would direct the Secretary of Transportation to compensate United States claimants for economic losses incurred from the Bay of Campeche oil spill in accordance with procedures established under Section 303 of the Outer Continental Shelf Lands Act Amendments of 1978, 43 U.S.C. 1813. The bill would provide a statute of limitations for claims, subrogate the United States to the claims of those provided compensation, prevent against double recovery under both this bill and other laws and authorize to be appropriated funds with which to provide compensation.

The Department of Justice does not support such a piecemeal approach to the problems of oil spills and the release of other hazardous substances into our environment. Instead, we support H.R. 4566, the Administration's bill which would provide a comprehensive system of liability and compensation for such disasters. The Department of Justice opposes the formation of an ad hoc commission formed after a specific incident which would interfere with litigation the Department is presently vigorously pursuing.

As you may know, October 23, 1979, the Justice Department filed a claim against Sedco, Inc., the domestic corporation which leased the rig involved in the Bay of Campeche oil spill, and we have reserved our rights in that action to file actions against other parties which may be responsible for the oil spill. In addition, the State of Texas and numerous individuals and businesses have filed claims against Sedco, Inc. and Mexican interests for damages from the oil spill.

The Office of Management and Budget has advised that there is no objection to the submission of this report from the standpoint of the Administration's program.

Sincerely,

Alan A. Parker
Assistant Attorney General

V

96TH CONGRESS
1ST SESSION

H. CON. RES. 188

Expressing the sense of the Congress that the President should establish a temporary commission to evaluate damage caused by the oilspill resulting from the blowout of the oil well known as Ixtoc I, situated near the coast of Mexico, and should enter into negotiations to establish an international agreement applicable to determining liability, and obtaining compensation, for environmental damage caused by oilspills at sea.

IN THE HOUSE OF REPRESENTATIVES

SEPTEMBER 19, 1979

Mr. GONZALEZ submitted the following concurrent resolution; which was referred jointly to the Committees on Foreign Affairs, Merchant Marine and Fisheries, and Public Works and Transportation

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CONCURRENT RESOLUTION

Expressing the sense of the Congress that the President should establish a temporary commission to evaluate damage caused by the oilspill resulting from the blowout of the oil well known as Ixtoc I, situated near the coast of Mexico, and should enter into negotiations to establish an international agreement applicable to determining liability, and obtaining compensation, for environmental damage caused by oilspills at sea.

Whereas the blowout on June 3, 1979, of the oil well known as Ixtoc I, in the Bay of Campeche near the coast of Mexico, has caused the release at sea of an unprecedented amount of oil and such blowout has not been brought under control; and

Whereas the oilspill resulting from the blowout of Ixtoc I is causing extensive damage to the coastal and marine environment of the United States and severe economic losses to residents of the United States who depend on such environment for their livelihood; and

Whereas the United States should attempt to prevent and to minimize environmental damage resulting from the blowout of Ixtoc I and should provide financial assistance to residents of the United States who suffer economic losses caused by such damage; and

Whereas numerous oilspills result from blowouts of oil wells operating in the sea and from the discharge of oil carried as cargo from damaged oceangoing vessels; and

Whereas such oilspills cause extensive damage to the environment and severe economic losses to individuals and countries throughout the world: Now, therefore, be it

Resolved by the House of Representatives (the Senate concurring), That (a) it is the sense of the Congress that the President should establish a temporary commission—

(1) to evaluate the extent of the damage to the coastal and marine environment of the Untied States and the economic losses suffered by residents of the United States, caused by the oilspill from the blowout of the oil well known as Ixtoc I, in the Bay of Campeche near the coast of Mexico, and to advise the President of the results of such evaluation,

(2) to collect and disseminate information regarding actions that are taken by such residents and by Federal, State, and local agencies to prevent and minimize the harmful effects of such oilspill and to rehabilitate the damaged coastal and marine environment of the United States, and

(3) to collect and disseminate information regarding the availability of financial assistance to persons who suffer economic losses caused by such oilspill.

(b) It is the sense of the Congress that any commission established by the President as provided in subsection (a) should be composed of—

(1) representatives of—

(A) the Corps of Engineers, Department of the Army,

(B) the Coast Guard, Department of Transportation,

(C) the Department of Commerce,

(D) the Department of Justice,

(E) the Department of State,

(F) the Environmental Protection Agency, and

(G) the Small Business Administration,

(2) five representatives of the general public, and

(3) the Governor of each State directly affected by the oilspill resulting from the blowout of Ixtoc I.

Sec. 2. It is the sense of the Congress that—

(1) the President should request the Government of Mexico to cooperate with the President and any commission established by the President as provided in the first section of this concurrent resolution in assisting actions to contain and remove the oilspill resulting from the blowout of Ixtoc I, to assess the damage to the coastal amd marine environment of the United States caused by such oilspill, and to obtain compensation for such damage from persons responsible for the blowout of Ixtoc I, and

(2) the Attorney General of the United States should attempt to obtain from all persons responsible for the oilspill resulting from the blowout of Ixtoc I compensation for damage to the property of any affected State and the United States.

Sec. 3. It is the sense of the Congress that the President should enter into negotiations with the governments of other countries for the purpose of establishing an international agreement regarding procedures and principles for determining liability, and compelling the payment of compensation, for environmental damage caused by oilspills at sea.

SEC. 4. It is the sense of the Congress that the President should report to the Congress annually regarding any action the President has taken in the year preceding such report as a result of the adoption of this concurrent resolution.

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U.S. SMALL BUSINESS ADMINISTRATION
WASHINGTON, D.C. 20416

OFFICE OF THE ADMINISTRATOR

OCT 10 1979

Honorable John M. Murphy
Chairman
Committee on Merchant Marine
and Fisheries
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

This is to acknowledge your request of September 25, 1979, for the views of the Small Business Administration concerning H. CON. RES. 188, a resolution "Expressing the sense of the Congress that the President should establish a temporary commission to evaluate damage caused by the oilspill resulting from the blowout of the oil well known as Ixtoc I, situated near the coast of Mexico, and should enter into negotiations to establish an international agreement applicable to determining liability, and obtaining compensation, for environmental damage caused by oilspills at sea."

A proposed response is now being prepared within the Agency and will be forwarded to you upon completion of the normal Administration legislative coordination and clearance process.

Sincerely,

A. Vernon Weaver

A. Vernon Weaver
Administrator

Mr. **Breaux**. Any other opening comments? I understand we do have some comments.

Congressman de la Garza.

Mr. **de la Garza**. Mr. Chairman, in deference to the witnesses who have come a long way, I would rather defer my statement at this time and ask unanimous consent to extend my remarks on the record.

Mr. **Breaux**. Without objection, so ordered.

Congressman Wyatt?

Mr. **Wyatt**. Mr. Chairman, fellow members, I appreciate the opportunity to present and hear testimony concerning H.R. 5577 which Mr. de la Garza and I introduced with the support of many of our colleagues. I wish to particularly thank Chairman Murphy for his support and for allowing the field hearings which produced this legislative initiative. Of course, Chairman Breaux, your cosponsorship and help by chairing the hearings in Corpus Christi are greatly appreciated as is your and Chairman Biaggi's rapid scheduling of this hearing.

Since Ixtoc I blew out on June 3, there is a possibility that up to 8 million barrels—that amounts to over 300 million gallons—of oil has entered the marine environment at the Bay of Campeche. The most conservative estimates place the amount of oil at about 2 million barrels. This oil traveled over 500 miles in about 60 days, and oiled U.S. beaches for over a month. In fact, much oil remains buried in the sand and resting in offshore troughs.

Fellow members, this is not something you can reasonably expect—it is not a natural disaster. It is the result of a business activity in a foreign economic zone. Further, this well is owned by an entity whose major foreign customer is the United States. We currently import close to 500,000 barrels of oil a day from this source.

I can understand the desire for a comprehensive solution. I support comprehensive legislation. The plain and simple fact is that no comprehensive plan is in effect and no proposed plan is retroactive. If comprehensive legislation were passed today, victims of Ixtoc I would still be left dangling and twisting in the wind.

Such specific one-shot approaches are not without precedent where a national purpose is involved, innocent victims are harmed by manmade events totally beyond their control, and judicial remedies doubtful and time consuming. In 1955, Congress passed legislation compensating victims of a disaster that occurred in 1947.

In the case of Ixtoc I, there are nine pending lawsuits. A commercial operating entity which is an instrumentality of the Government of Mexico is an indispensable third party to judicial proceedings. This will undoubtedly affect our relationship with that government.

I have prepared a proposed substitute which is available for purposes of discussion which would serve to aid in the aggregation of claims by subrogating claimants' rights of recovery to the United States. Of course, this would allow the claims to be settled through arbitration, bilateral agreement, or, ultimately, litigation.

This substitute would also authorize a damage assessment study to be funded. This is important for purposes of compensation, litigation, negotiation, and determining future response activities.

I have included a mitigation measure which should help address both economic and environmental problems. Any amount appropriated for this purpose would be subtracted from future claims by the State for damages to the saltwater fisheries.

Let me again stress that no citizens should be left to the mercy of manmade occurrences beyond their control which are related to a national purpose simply to pass a comprehensive measure. Obviously, if such a measure was now law, there would be no need for H.R. 5577.

In addition, the beaches stopped receiving oil not because the oil stopped discharging, but because the wind and currents changed as they do every season. They even changed a little early this year. In February, these currents begin to reverse and oil will again begin the long journey to our shores. It should start impacting our shores in May. This time it may not go away after a month—it might last all summer.

Mr. Chairman, thank you.

Mr. **Breaux**. Any other opening statements?

Mr. **Donnelly**. Yes, Mr. Chairman.

Mr. **Breaux**. Mr. Donnelly.

Mr. **Donnelly**. Mr. Chairman, as a Member of Congress representing an area which may soon experience offshore oil and gas development, I must express my sympathy for the U.S. citizens who have been injured by the Ixtoc I blowout. These people were not the victims of unfortunate disaster caused by natural forces, which one may expect when living on or near a coastal area, nor were they the victims of transportation related spill which we have experienced firsthand in Massachussets, but as we know, the residents of south Texas were not the victims of a spill created by development on the U.S. Outer Continental Shelf. The Ixtoc I oil spill is a manmade tragedy caused by commercial enterprises in a foreign economic zone.

Furthermore, it is of such mammoth proportions that it dwarfs all previous spills. Likewise, it presents an opportunity to study the effects of large amounts of oil on the marine environment, something crucial for New Englanders, and others who will seek offshore oil and gas development or are subject to the continual risk of tanker spills. I wholeheartedly support H.R. 5577 and congratulate my colleagues, Mr. Wyatt and Mr. de la Garza and other members of the Texas delegation in their efforts to compensate, mitigate and recover damages which have impacted their district so severely.

Moreover, I believe it is essential for the Congress to pass comprehensive compensation for oil spill damage. I do not feel that this legislation diminishes the need for a super fund. It does, however, highlight the need for such proposal to cover all spills in the future.

Thank you very much.

Mr. **Breaux**. Thank you, Mr. Donnelly, for your comments.

With that, we would like to welcome at this time, our good friend and colleague, a former member of this committee, a noted constitutional lawyer, Bob Eckhardt.

We are pleased to receive your statement. I think the members have been given a copy of your testimony, and I invite you to proceed as you would like.

STATEMENT OF HON. BOB ECKHARDT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. ECKHARDT. I shall summarize, Mr. Chairman. Thank you for this opportunity.

I first want to thank my old colleague, both on this committee and in the Texas House of Representatives, Kika de la Garza—of course, his district is very strongly impacted—and I want to thank him and recognize his leadership in this area. As I also do Congressman Joe Wyatt, whose district is affected, and particularly I second his statement a moment ago to the effect that this is a unique situation. It is one in which an area of the United States has been impacted by an accident which occurred away from our shores and which will ultimately cost the people in his district and in Congressman de la Garza's district and, to some extent, in the coastal waters off of mine.

As he pointed out, a great amount of the advantage of the risk involved in producing oil in Mexico extends to all of the people of the United States. So I think there is a unique situation here that needs to be addressed as he has suggested, by specific legislation.

The question is sui generis. It is a different situation than that which exists in other places.

I also know a witness who will appear later, my good friend, Babe Schwartz, who served with both Congressman de la Garza and myself in the Texas Legislature, and who, if there is any man in Texas in political life who has done more for coastal areas in Texas, I do not know him. Babe Schwartz has been a great leader in his field and is extremely knowledgeable in the entire question.

I want just to briefly address a part of this question. It happened that this spill occurred at about the spawning time of the red drum, we call them red fish. There is a likelihood of serious injury to the eggs of the red fish for that reason.

A part of the $6 million that is asked for under the bill would go, as I understand it, to the Texas Parks and Wildlife Commission which is doing an excellent job with respect to this species of fish and also with respect to what we call sprreckled trout. The red fish catch in Texas is extremely important to the area. I think sometimes we fail to understand the importance of sports fisheries to an area. Actually, there are more fish, not counting, of course, the shrimp and other seafood in the area caught by sports fishermen than by commercial fishermen in the area.

To give you an example of what is being done, I might mention the saga of Ruby Red, the red fish that was used in the ponds of the parks and wildlife commission in Palacios. There has been extensive experimentation and activity to restock those coastal waters with red fish. I sent a statement down with one of my representatives to your hearing in Corpus Christi on September 8, but some of the information had not developed at that time. In 2 years of captivity of this particular red fish, 3 feet long, weight about 50 pounds, she produced millions of eggs which hatched into red fish fry which, in turn, were released into our bay waters. The same type of experiment is now being carried on with about eight more brood fish in the tanks of the park and wildlife commission at Palacios at the present time.

So the moneys would be well used for this purpose. They would be used for the purposes of experimentation and replenishment of the waters of Texas. The same species of fish, of course, is found all over the gulf coastal waters and up the Atlantic seaboard. This would be money well spent with respect to the welfare and the important economic aspects of the entire Nation.

Of course, the presiding chairman of this subcommittee at this time well knows the importance of the shrimp catch in the gulf coast, which is also something that we need to watch very carefully with respect to what the Ixtoc oil spill might have done. I shall not engage in a regional dispute with him, but I might say that Texas and Louisiana are, of course, together the greatest developing area and produce the greatest shrimp catch in the entire world. The only thing that comes close to it is an area off the shore of Africa, so our tremendously important commercial base is very much in question. The action that you are taking here, if you should decide to support this bill, which has been introduced by Congressmen Wyatt and de la Garza, and of which I have had the satisfaction of being a cosponsor, will, I think, afford many times its cost in benefits to fishing and in protection against the harm done by the Ixtoc oil spill.

Thank you very much for your giving me this opportunity to speak in support of the bill.

Mr. Breaux. Thank you, Congressman, for your statement and for your participation in this legislation.

Bob, do you have any comment on the argument that some make that say, well, any third party who has incurred or likely to incur any damages as a result of the Ixtoc bill would have standing to sue in a court of law, either in the State of Texas or bringing a proceeding in a Mexican court against wrongdoers, Pemex or whoever is decided to be ultimately liable?

Mr. Eckhardt. You mean if you should by law enact provisions having to do with standing subsequent to the event it occurred?

Mr. Breaux. No. Some will make the argument that the Congress should not pass a law compensating these victims as long as they have a legal remedy under the court of law, that is, a lawsuit in Federal Court in Texas or even a proceeding in a Mexican court. Some make the argument it is not necessary because they can bring a lawsuit to recover the cost of their damages.

Mr. Eckhardt. I do not agree with that at all. We in my Subcommittee on Oversight and Investigations in the Commerce Committee run into some similar situations where persons have been the victims of certain activity for which a government may have been to blame or may not have been to blame. For instance, the situation with respect to low-level radiation in Utah. In situations like that, the question of the possibility of recovery is quite shaky because you have got to establish two things if you are bringing an action against an individual. The problem is the question of whether or not the injury was caused by the activity and, second, whether or not negligence was involved in connection with the activity.

Now, those are awfully hard hurdles to cross, and it does not seem to me to make all that amount of difference as to whether or not the Government of Mexico or those operating the machinery in Mexican waters were guilty of negligence or not. The injury exists all the same.

In this case, you have got an even greater problem involved, and that is the question of bringing action in a Mexican court—the cost of it, the difficulties in establishing these types of responsibility in a law other than our own. You have also got a question in the U.S. courts of getting service on witnesses and proving whether or not negligence occurred and so forth. It seems to me that there are so many barriers to recovery that this is a case that ought to be treated specifically by legislation.

Mr. **Breaux**. Assuming legislation were enacted, would that preclude a party from bringing a cause of action in a court of law in your opinion?

Mr. **Eckhardt**. No; I do not think so. I think it would depend on how you drafted the act. But I do not even believe you could draft the act to take away a person's existing rights as a result of occurrence that happened before passage of the act. I do not think you would affect that at all.

Mr. **Breaux**. Would they be able to recover twice for the same injury that way?

Mr. **Eckhardt**. I would think that you would want to provide in this act, or in any act in which you provide for restitution of damages to individuals, that the Government would be subrogated to the rights of the person as against the wrongdoer so that the Government could recover what was expended out of the recovery to the individual.

Mr. **Breaux**. Thank you.

Mr. Forsythe.

Mr. **Forsythe**. Thank you, Mr. Chairman. Thank you, Bob.

Mr. Chairman, before I do proceed with questions, I see our colleague, Don Young, is not here, and he has a statement in support that I would ask unanimous consent be inserted in the record.

Mr. **Breaux**. Without objection, Congressman Young's statement will be made a part of the record, and also I would ask unanimous consent that the statement of the chairman of the full committee, Congressman Murphy, also be made a part of the record.

[The following were received for the record:]

Statement of Hon. John M. Murphy, Chairman, Committee on Merchant Marine and Fisheries

The Mexican oil well Ixtoc I, located in the Bahia de Campeche about 40 miles from the Mexican coast, blew out on June 3, 1979. Since that time, the well has discharged great quantities of crude oil into the Gulf of Mexico. Estimates of amounts vary. Some say that 10,000 to 30,000 barrels per day have escaped from the well since the blowout occurred. Others, basing their views on observations on-scene, claim that the volume discharged is much greater than 30,000 barrels per day. All estimates aside, Ixtoc I is undeniably the largest oil spill in history—a man-made disaster of momentous proportions. Its dimensions—and its repercussions—may well take years to assess.

Winds and currents spread the Ixtoc oil over a huge expanse of the Gulf of Mexico. Mexican beaches and fishing grounds were severely impacted and, from early August, the oil gravely affected the waters and coastline of the United States, from Brownsville to Matagorda Island. The ultimate impact of the oil pollution upon Texas, upon other states littoral to the Gulf of Mexico, and on the resources of the Gulf itself, can only be speculative at this stage but what is sure is that the impact is and will continue to be severe.

Seasonal changes in wind and current patterns have, for a time, reduced the immediate threat to the U.S. Gulf Coast and contiguous offshore areas. But this is temporary relief at best; if the source of the oil is not shut down, a new onslaught of Ixtoc oil may be expected in the spring of 1980, impelled by northward forces of wind and sea.

The committees of pertinent jurisdiction in the U.S. House of Representatives closely followed developments ensuing from the blowout of Ixtoc I. A delegation from the Committee on Merchant Marine and Fisheries visited Texas in July, 1979, overflying the well site and polluted ocean areas and auditing the activities of the Federal agencies preparing to respond to the emergency as the pollution approached the Texas coast. In September, the Committee on Merchant Marine and Fisheries, jointly with the Water Resources Subcommittee of the Committee on Public Works and Transportation, held a two day hearing in Corpus Christi. The unique nature of the massive oil spill required a detailed hearing if proper groundwork were to be laid for congressional action to protect both the immediate interests of the residents of impacted coastal areas as well as our national interest. With these actions, this committee began to build the record on which remedial action could be based.

Existing domestic law falls well short of the face of the Ixtoc I disaster. The plight of affected U.S. citizens underscores the need for legislation such as H.R. 85. A bill to provide a comprehensive system of liability and compensation for oil spill damage and removal costs. This bill was reported by the Committee on Merchant Marine and Fisheries on May 15, 1975, and is now before the Committee on Public Works and Transportation. The Ixtoc I disaster, as do other pollution incidents in recent months, emphasizes the need for prompt action to afford our citizens damaged by oil pollution swift legal means, not now available to them, to obtain just compensation.

H.R. 6803, the predecessor bill to H.R. 85, was passed by the House of Reprsentatives in the last Congress but failed passage by the Senate in the closing days of the session. Had H.R. 6803 been enacted into law a year ago, U.S. citizens suffering damage from Ixtoc I would now have quick and effective means to obtain compensation. If H.R. 85 is enacted into law early in 1980, those who may be affiliated by the Ixtoc I oil later in the year will realize the benefits of an orderly and comprehensive compensation system.

In any event, the U.S. Government must, as a matter of priority, tackle the problems represented by Ixtoc I. We must assess the devastation being caused by the runaway well and prepare to deal with the possibility of similar disasters in the future. We must seek ways to rectify the gaps in international law that at present provides no sure remedy for those suffering egregious economic and environmental injury. And we must assess possible ways to assure relief for those who already have been harmed.

I commend the gentleman from Texas, Mr. Wyatt, for responding to the Ixtoc I challenge by introducing H.R. 5577, a bill that would provide compensation for economic loss resulting from oil pollution caused by the blowout, I am pleased to cosponsor the bill, and to have it before the committee I am privileged to chair. I believe that this hearing today emphatically illustrates the importance committee members attach to this grave problem. With this hearing, we demonstrate our readiness to fashion appropriate legislative solutions. H.R. 5577 merits our careful consideration and will, I am sure, provide a sound basis for the testimony to be recorded today.

H.R 5577 is not without precedent. In the aftermath of a cataclysmic ship explosion in Texas City in April, 1947, the Congress enacted Public Law 84-373, an act to provide for settlement of claims resulting from the Texas City disaster. This legislation was in recognition of the tedious, time-consuming, and expensive process of litigation that faced the victims of the terrible explosion that took many lives and that leveled large areas of the Texas City port. It does not stretch logic or torture reason to draw parallels between the situation resulting from the Texas City explosion and that created by the oil pollution from Ixtoc I. The Texas City Claims Act, therefore, has precedential value.

This, in brief, is the background for our hearing today. I am sure that the testimony to be recorded and further thought and analysis on the Ixtoc I situation will suggest improvements to H.R. 5577. One issue that should be addressed is the assessment of damage resulting from the blowout. The widespread oil pollution of the Gulf of Mexico must be the subject of a comprehensive, searching assessment of damage and effects. I know that Congressman Wyatt and others are working on this aspect, and I fully support their efforts.

Finally, we must assure that whatever is done with regard to H.R. 5577 does not impede the progress of H.R. 85 in its movement toward enactment into law. I see H.R. 5577 as complementary to H.R. 85, rather than at cross purposes. I hope that members of the subcommittees can share that view and press forward accordingly.

Statement of Hon. Don Young, a Representative in Congress From the State of Alaska

Mr. Chairman, Members of the Subcommittees, I appreciate this opportunity to submit a statement in support of H.R. 5577, the "Ixtoc I Oil Pollution Compensation Act of 1979," of which I am proud to be a co-sponsor.

As you know, the Ixtoc I blowout has caused considerable concern among residents of the Gulf of Mexico area. Already, a minimum of 50 million gallons of oil have been discharged into the waters of the Gulf. This figure, by the way, was obtained in October, which means that the current spillage total is much, much higher. In spite of efforts by the Mexican government and U.S. consultants, the oil continues to flow. While damage has not yet been assessed, we do know that the Small Business Administration has awarded $4.5 million in economic dislocation disaster loans, and the Gulf shrimp catches have declined by 27 percent this year. When the full assessment is done, it appears inevitable that total damages will be much higher.

Under normal circumstances, all of these costs could be recovered and the damage compensated, either by the Outer Continental Shelf Offshore Compensation Fund or by normal disaster relief mechanisms. Unfortunately, the Ixtoc I blowout is neither fish nor fowl: the OCS Fund does not apply because the accident has not occurred in U.S. waters; the disaster relief mechanisms do not apply because this is a man-made problem. Even the Comprehensive Oil Spill Liability Fund, a measure that a number of us supported, is useless. For one thing, we are still awaiting passage of the authorizing legislation, a problem caused not by this Committee, which worked so diligently to report out the measure, but by an administration that cannot decide what it wants. In addition, even if the Liability Fund bill were passed tomorrow, the Ixtoc I problem would not be applicable, as the Liability bill is not retroactive. Clearly, then, some other means must be found to alleviate the economic problems that the Gulf area is now facing.

H.R. 5577 will provide the sort of relief necessary at a minimal cost. Further, any monies expended under this legislation can be recovered through appropriate negotiations, and if necessary, legal action with Mexico. In fact, by allowing U.S. citizens to recover damages under this Act, we will make it easier for the U.S. government, as a single entity, to document damage claims and apply for repayment from the owners of Ixtoc I. Surely this is better than thousands of individual suits against the Mexican government.

Again, let me point out that the Ixtoc I problem is a unique situation and therefore deserves special attention. Indeed, ample precedent exists for special treatment. Let me remind you that the Congress has acted before in setting up special oil spill compensation procedures. The Trans-Alaska Pipeline Act had a special oil spill compensation fund set up which exists to this day. In the Ixtoc I case, we are unable to "tax" oil producers or transporters due to the unique conditions that exist. Our only course of action is a special bill dealing with this problem.

Mr. Chairman, I have served with this Committee and the Select Committee on the Outer Continental Shelf for some time, and I am well aware of the problems that can be caused by the discharge of large quantities of oil into the aquatic environment. I have worked on both the OCS Compensation Fund and the Oil Spill Liability bill, and I recognize the difficulties in determining how to compensate for oil spill damage. I think our colleague from Texas, Mr. Wyatt, has taken a good approach with this legislation and I urge these joint Subcommittees to give it every favorable consideration.

Mr. Forsythe. I think, pretty clearly, H.R. 5577 does subrogate all rights of individuals to the Government, so at least the legislation as it is drawn now certainly clears that point.

Thank you, Bob.

Mr. Breaux. Congressman de la Garza.

Mr. de la Garza. I have no questions, Mr. Chairman. I wish to thank our distinguished colleague from Texas for joining us and for his contribution.

Mr. **Breaux**. Congressman Wyatt.

Mr. **Wyatt**. Thank you, Mr. Chairman. Thank you, Mr. Eckhardt.

I have no questions.

Mr. **Breaux**. Any questions, Mr. Hughes, Mr. Donnelly?

Mr. **Hughes**. No, thank you.

Mr. **Donnelly**. No.

Mr. **Breaux**. Bob, thank you very much for your contribution.

Next we would like to invite up as our second witness this morning A. R. "Babe" Schwartz, State senator from the State of Texas, internationally known as Babe.

Babe, we are pleased to have you with us. You also participated in our hearings in Corpus Christi and made some valuable contributions at that time. We are pleased to have you here this morning again.

STATEMENT OF HON. A. R. "BABE" SCHWARTZ, STATE SENATOR IN THE STATE OF TEXAS

Mr. **Schwartz**. Mr. Chairman, I do appreciate the opportunity again to appear before this committee. I think this committee is probably the greatest beneficiary from a legislative standpoint and from a congressional action standpoint of my coastal district in Texas that exists in the United States today.

I am a minor part of that representation, because everything that we seem to need and the things that I believe will satisfy the emergencies in our district must come from the Congress in terms of national concerns and where the national interest is involved. This bill, as all of you know who came to Corpus Christi, is a result of that hearing, I think, and the testimony of that hearing in which I did suggest that the Texas City disaster formed a basis in my mind for a compensation bill specifically designed to compensate persons for this kind of accident or incident.

I think it is commendable that both Chairman Breaux and Congressman Wyatt have joined in coauthoring legislation which has been introduced in two different forms. Congressman Wyatt's bill or substitute which has been provided me this morning is a commendable addition and has a commendable addition to the existing or to the first bill introduced in that it also provides for damage assessment program which I will address myself to as a separate issue.

I would like to say first that I have testified about oil spill compensation funds since 1975. At that time, I somehow believed that we are going to pass a super fund bill here in the U.S. Congress for the benefit of the Nation in a very ready and prompt immediate response to that emergency which presented itself to the United States. Since that time, we all know the House has passed such legislation twice. It has gone to conference committee twice, and because of difficulties apparently with some Senate attitudes about some provisions of the bill, it has not become law.

In the absence of that super spill fund, which I believe is essential and which would cover some of the obligations that I believe we as a Nation have innocent victims of our need and our insatiable desire for petroleum products, now 50 percent of which is imported to this country, for our use in this country, the innocent victim is faced with a situation in which they may suffer a disaster which they cannot recover any compensation for except through the employment of attorneys and pursuit of aims and objectives and lawsuits which are beyond the means of most people even to comprehend.

So back in 1947 in the Texas City disaster, at that time a lawsuit was tried all the way to the Supreme Court of the United States. The lawsuit was lost because there was no liability on the part of the United States for that freighter explosion in the harbor at Texas City. The courts so found.

The Congress, in its wisdom, accepted a responsibility, however, to the citizens of the United States, who had suffered death and property losses and loss of family, and paid compensation to victims on a determined basis in that bill. The late President Lyndon Johnson, then a Member of the U.S. Senate, ultimately passed the Senate version of the bill, and the Honorable Clark Thompson was House officer of the bill, and I believe first introduced the bill. So the precedent exists.

The bill was finally passed in 1955. Our position now is comparable in this regard. We have Ixtoc's bill which was created and caused in a foreign country by the negligence or by an act of God or by whatever occasion brought about this catastrophic oil spill which is now categorized as the worst in the history of the world. It is important to understand in the unlimited liability feature of any other kind of oil spill, a citizen would have a ready remedy, although I am going to address myself as to how ready that remedy is, but under Texas law and under, for that matter, U.S. law, and I have brought the most recent case with me which Marathon Oil tried to defeat the Coast Guard's attempt to impose a civil penalty upon them. It is *United States* v. *Marathon Pipeline Co.*, a 1978 case, which I will leave with the Committee.

The court resolved that the Coast Guard had a right to impose a civil penalty in the absence of negligence under unlimited liability without regard to fault.

The purpose was that civil penalties collected under the law are deposited in a revolving fund which is used to finance oil spill cleanup alterations. Thus, Congress has made legislative determination that polluters rather than the public should bear the cost of water pollution.

So the precedence for oil spills in these waters in which we have collectible damages is well set for both criminal and civil penalties and money collected goes to the right places. Here we have, on the other hand, an oil spill coming from Mexico, 30,000 barrels a day, coming out of a well, last year come into the Texas coast without any limitation as to whether it might impact the entire 600 linear miles of Texas coast or whether, indeed, it would be limited as it finally turned out to that area just north of Corpus Christi in my senatorial district to a point on the Mexican border which is the entire district of Congressman Wyatt and Congressman de la Garza of this committee.

Now, those people were all innocent victims of a spill over which they have no control and suffered damages which they have no adequate compensation for in a court of law unless they each want to pursue that remedy against the Federal Government or unless the attorney general of the State of Texas is successful in pursuing a remedy on behalf of the State of Texas and its citizens against either Sedco, or Pemex or Pemargo, the Mexican operators and owners of that oil well.

Now, Sedco, as you know, is simply a drilling company which takes the position that it had a limited liability of $300,000 in the furnishing of its drilling rig. Although its owner is now the Governor of Texas, that is not involved in the controversy to any degree, but it has caused a little political flack between the Governor and the attorney general, both being of different parties and persuasions, I might add.

Now, all that is wonderful except that the innocent victim of all this is still down there trying to find out what happened to him in the summer of 1979. What the innocent victim does not even know is that in the summer of 1980, he is liable to be revisited by that same plague with the same courtesy of the Mexican Government, because in the Senate hearing on the Senate Commerce, Science and Transportation Committee yesterday, it became obvious from the testimony from some scientists and one particularly from MIT, that the Mexican Government has not sufficiently capped that well and that there is still a constant flow and a rather substantial flow of oil into the Gulf of Mexico, and that given the proper current change in the springtime again, we may be revisited by that disaster and, in effect, it may be worse because nobody has yet identified where those 30,000 barrels of oil a day went since 1979 in August and September. The oil that came up on the beach, speaking now to the compensation issue, virtually destroyed a tourist season.

In addition to that, the testimony yesterday from the NOAA people was that the consistency of the oil spill in the sand was what they called the marble cake type consistency. That is, it was layered, a layered cake, if you can visualize a trench in which you may have three or four or five different levels of oil arriving at different times with different tides and sands settling on top of it, you have a layer cake of 140 miles of Texas coastline, and the testimony yesterday was that was 3 million gallons of product.

Now, all the rest of that oil is out there in the gulf. Dr. Parker testified as a scientist from U.T. Marine Science Institute before the Texas Coastal Marine Council on Friday before my committee in Austin, Tex. at my invitation that, therefore, the spill scientific study of Texas coastline determined, one, that the oil from the Pemex spill had a high toxicity to the larvae stage of marine life, and complemented the testimony of Congressman Eckhardt, who is the unquestioned expert in our State on a substantial number of hazard conditions in a variety of circumstances in fisheries, to say the least, from his long service on this committee and in the Texas House of Representatives. It is unequivocal that toxicity of that oil would destroy larvae population of our red fish and substantial other marine life population in the coastal area..

But we are going to require what is provided for in this field, and that is a damage assessment program with U.S. scientific team on the scene to take our zero base line studies which we do have in Texas, and incidentally which you do not have the benefit of yet, Mr. Donnelly, in Massachusetts for your Georges Bank concern—

we do have a zero base line study, and a scientific team of real ability and capability could determine in the coastal waters exactly what happens to the marine population and to the ecology and environmental conditions of the coastal area impacted by 3 million barrels product that washes up on its beaches and layers within the sand and, indeed, got into the estuary.

Let me address myself to that kind of damage. We seek compensation where we have liability in Texas from spillers that damage environment and wildlife in the estuary. We have had blowouts and ruptures in our bay systems from oil drilling operations, and the parks and wildlife pursues compensable damages from the spiller. We are restored on a cost per fish, per oyster bed, per oyster, whatever the ratio is, for damages where we can recover damages from somebody who is responsible.

The containment system which was used by the Coast Guard, although this is arguable on the Coast Guard's part, was observed by Dr. Parker again from U.T. Marine Science Institute, and Dr. Roy Hann from Texas A. & M., which is a sea grant university, the sea grant university in Texas. The sum total of the opinion is, and this is Dr. Parker I am quoting now from Friday's testimony, he saw no evidence that the containment capability met the requirements for prevention of the oil from entering the estuary, that for 3 days he watched oil go over and under containment equipment in place by the Coast Guard in the estuary system, and that the estuaries were saved by reversal of current and wind conditions. And that in its totality provided the basis for salvation for the bay system of Texas from the Pemex Ixtoc oil well spill.

Now, given those conditions, and given a springtime in which we may have revisitation of that catastrophe, we are in real trouble. I am going to quote from testimony which I gave in Corpus Christi, just because I would like it in the record again at this hearing, and it quotes Dr. Hann, and I am going to read it.

Dr. Hann reached this conclusion. We can all be nice to each other, but the fact remains that we had 70 days within which to team up and prepare for a major catastrophe, and those 70 days were all but wasted in utilizing the same kind of equipment and same kinds of concerns that had been previously developed for different kinds of catastrophes and different kinds of spills.

The conclusion here, and I am now reading from Dr. Hann's statement, says as follows:

> We do not accept any decision which leaves thousands of tons of oil untouched on our shores both from its ecological and its economic viewpoint.

But the bottom line of that is the damage factor is not recoverable from anybody at this point in time, and I believe this compensation bill provides a way that we can recover damages for the State, not for the State in particular, but for the individuals in our State who suffered their tourism loss, their economic loss, their fisheries loss and, in addition to that, we can determine the other peripheral damages that have resulted in the past.

Now, the U.S. Government owes an obligation to recover from Mexico in whatever bilateral agreements and whatever associations we can make for this spill and to deal with future spills of this consequence, and I am delighted that the senior members of this committee have teamed up and requested such action of the

U.S. Government through President Carter in the form of a Commission. We saw that press release yesterday. The Texas Coastal Marine Council passed a resolution before our Corpus Christi hearing in which we petitioned the Congress and the President of the United States and the Governor of Texas to institute immediate discussions with the President of Mexico or with appropriate Mexican Government authorities for the purpose of adopting an executive accord or other procedures that can be mutually agreed upon by Mexico and the United States for protecting resources and the environment of the Gulf of Mexico and its coastal area as the development of those resources is conducted.

In settling this thing down and concluding, I would like to point out that in yesterday's hearing, during the noon hour, Senator Weicker issued this press release, and I am quoting from his press release:

"I believe that U.S.-Mexican cooperative effort regarding the Campeche spill was a mess," Weicker said. "We may be sacrificing the gulf," he continued, "to insure that we receive Mexican oil in the future."

Now, my comment to Senator Weicker after his press release, and I then testified, was that there was an excellent opportunity at least to compensate some of us on the gulf for our losses by passage of a bill pending over here in the House that had to do with the compensation fund. I called to his attention and the attention of the committee that such a bill would at least deal with damage aspect of that mess, which has not yet been cleaned up, and which has not yet occurred.

Mr. Chairman, with your indulgence for just 1 minute, I am going to add some things to the record, a Houston Post commentary article, dated September 11, 1979, which is by Michael Killan, Chicago Tribune, and the title of that is "Who Shall Pay?"

I would like the record to reflect the contents of that article.

I would like to address myself to one last matter, and that is that in connection with the *Burmah Agate* spill off of Galveston, this committee has jurisdiction to deal with the issues involved in that particular matter, and I am only going to address myself to it because although I know you gentlemen do not need another amendment to this bill, we now have over 50,000 barrels of oil from a tanker freighter collision 5 miles offshore Galveston which, from the standpoint of Texas coastline, believe it or not, is going to result in a greater catastrophic loss in terms of marine environment than we have now yet suffered from the Ixtoc spill. The difference is that it did not happen in the summertime. If it had happened in the summertime, we would have a $100 million tourism loss unquestionably between Galveston and Corpus Christi, and $100 million might be a conservative estimate.

There was 1 mile of oil on the beach yesterday in Brazoria County, and there is a 50-mile oil slick behind *Burmah Agate* offshore. The *Burmah Agate* has been burning since November 16. The *Burmah Agate* fire, as a conscious decision made by the Coast Guard and owners, it was decided that the *Burmah Agate* fire could not and would not be put out, and that decision was made about 14 days after the accident.

I read from the record yesterday of the Coast Guard wherein on the sixth day the best firefighting team in the world was brought to the scene by the owners to fight the fire on that ship and ran out of foam. The fire was virtually extinguished, and this is a quote, but the foam was expended.

We are located in the greatest petrochemical complex in the world, and there is probably more foam per citizen in our 2 million population area than there is any place else on the face of the world, but the greatest firefighting team in the world out there on that ship ran out of foam at the scene. I am not a firefighter and cannot comment on firefighting, but I know one thing, if anybody comes to put my fire out and runs out of water, I am going to be mad as hell. That is about the size of it. And my attitude of *Burmah Agate.*

Containment of capability of Coast Guard came into question because we do have 50,000 barrels of product out there. That does not give you a solution but we are going to have damages to the citizens of our State from a different consequence, and there is no question but that damage will be recoverable under unlimited liability statement that I read you earlier.

The *Burmah Agate* or the *Mimosa* will be responsible in damages for any damages in money paid to anybody under that particular spill. But are we going to require those individuals to file lawsuits to collectively obtain their damages, or can they not be included within the total assessment in this compensation fund? I address myself to that issue because I think it is worthy of your concern and I hope you will enlarge this bill for those concerns. I would request one further thing and then I will conclude and yield to questions, and I appreciate your patience.

I intend to introduce in the next legislative session, and I hope it is in special session with the blessing of our Governor, a bill that will require a harbor pilot licensed by the State of Texas to be aboard any vessel entering or departing waters of any Texas port at least 10 miles out, which is our jurisdiction, since we own the submerged areas under the Tide Lands Act in tidelands legislation for 10 miles.

Now, we just simply are not receiving, in my judgment, the protection from a marine safety standpoint that we are entitled to. I do not know whose fault that is. I am here to assess fault. All I am here to say is, and I have said it enough times to repeat it to this committee, we are faced with confirmed idiots manning foreign-flag vessels in the coastal waters of the United States. And you do not need to prove anything about them since they run into fixed objects in the gulf. You do not need to assess whether somebody is an idiot or not any further than whether or not he cannot avoid a drilling platform in the Gulf of Mexico when he is in charge of a vessel, 772 feet long. It is just that simple.

They are licensed by somebody, but I know dogs that have got licenses. My problem is that I do not understand how we cannot be protected from that kind of negligence and that kind of ineptitude in coastal waters when our citizens are going to pay the price for it, and when we are going to have to have compensation funds out of which they can be compensated.

Let me give you the classic of all classics. The *Mimosa* and the *Burmah Agate* which I just referred to somehow collided at 4 o'clock in the morning off Galveston, 5 miles out, recognizing that the pilot boards the ship 3 miles out under our present system. Now, I did not know that. I have to learn every time an accident happens just like everybody else, I guess, but if I had known we had stupid people that were going to run into each other 5 miles out, I would have been sure to have a pilot aboard 10 miles out some time prior to this time in my legislative career.

It is unquestionable that one or both of those masters was negligent. I would rather believe that only one was negligent but there is a pretty good chance that both were negligent.

Now, within the 10 days prior to my being here, two more of those commendable, command people running aground freighters in the Gulf of Mexico and into oil platforms, two of them within 2 days off the coast of Galveston.

In 1975, another one ran into a shale platform out there with Shell Oil Co. platform so it did not come as a surprise to us that there were dummies running out there in command of foreign-flag vessels. The *Globe Tikson* ran into a platform out there, and it would have been the same kind of tanker spill as *Argo Merchant* off of Massachusetts except *Globe Tikson* had very volatile cargo and burned up real fast, and the Coast Guard offloaded what was left, and that ship was carried to Brownsville for salvage in Congressman de la Garza's district, and I went aboard that vessel down there. History is replete with examples of that kind of ignorance and negligence and lack of concern for human life and property and environment.

Perhaps this committee, in considering the omnibus maritime bill that is now being considered by this committee, could give us on the Stateside some further guidance on how to control foreign-flag vessels in coastal waters so that we can protect ourselves. Otherwise, the lessons of the *Argo Merchant*, we heard yesterday, were not learned by anybody in the sense that they have been prevented any place else. The lessons of the *Globe Tikson* in the gulf were obviously not learned by anybody for any benefit of anybody. The lessons of the *Burmah Agate* are recent and we may have learned something from them, but not so well that two foreign-flag captains did not run into oil platforms in the same Gulf of Mexico within the same locality of Galveston within a 30-day period after *Burmah Agate*. We are not teaching those lessons very well.

I would hope that in the solution, at least, to the innocent victim problem that we can have this compensation bill for innocent victims of Ixtoc spill and *Burmah Agate* spill where it might occur that, in addition, we can have compensation, the damage assessment program, so we can have a scientific team assessment of damage. And, further, the $6 million that is here for fisheries program again is a significant contribution to the replacement of the wildlife that has been damaged and will be ultimately damaged in the long time due to toxicity of the oil which has impacted our coast.

Finally, the *Burmah Agate* toxicity has been measured and it is toxic in the same way the Pemex oilspill was toxic according to Dr.

Parker and perhaps more toxic because it is closer in and its impact to the shoreline more quickly achieved.

So those are the problems we have. We look to you for the solutions which you can afford and hopefully for which you can recover for the U.S. Government the moneys which you appropriated for those services.

Thank you.

Mr. BIAGGI [presiding]. Thank you very much, Senator.

Mr. Breaux.

Mr. BREAUX. Babe, I almost hesitate to ask this question but I am going to ask anyway.

Do you have any idea what the position of the Governor is on this legislation?

Mr. SCHWARTZ. I would suspect that the Governor would approve of Federal legislation which compensated Texas citizens for losses which they suffered simply because the Governor knows that if he thinks about it, and I know that he has, that they do not have a readily available compensation from any other source, that it is certainly a better method of compensation than the series of lawsuits that would have to be defended. I really do not think the Governor would have a position against compensation, and the Governor's position in the Sedco matter, I think, may have been blown out of proportion in the press because I do believe that his assets are in a blind trust, and I accept that fact, Sedco proceeded to attempt to limit his liability, but I believe the real liability in this case that will be recovered by the U.S. Government will be not from the Government of Mexico, but from Pemex, which is owned by the Government of Mexico.

Mr. BREAUX. Can you bring us up to date on any actions by the State of Texas with regard to compensating the citizens of Texas or any lawsuits that the State is bringing on behalf of the injured citizens?

Mr. SCHWARTZ. Mark White, who is the attorney general of the State of Texas, has filed the lawsuit which was necessary to be filed after Sedco filed in the Federal court in the southern district of Texas to seek an imposition of a limited liability from Sedco's standpoint.

Sedco took the position that they had a limited liability under the maritime theory that they simply furnished a rig without any management responsibility within the scope of that oil well drilling or production. And that on that basis they had limited liability. When they sought to limit their liability, it then became necessary for the Federal court to set a time within which all interested parties could join in that lawsuit to seek a common remedy. That is where we are now.

Mr. BREAUX. Thank you, Senator.

Mr. SCHWARTZ. There are individual lawsuits filed, too. Incidentally, several lawyers have entered that lawsuit on behalf of fishery groups and on behalf of some individuals claiming substantial damages, and in that case that will resolve itself into class action, and individual citizens will be relegated to whatever position their class action takes.

Mr. BREAUX. What happens if we pass a compensation bill here with all of the suits that are apparently appearing in Federal court, both on behalf of individuals and lawsuits brought by the State of Texas against Pemex or Sedco or whatever?

What happens with those lawsuits if we have a compensation program and say here is compensation for your injuries? Do those lawsuits get thrown out or what happens?

Mr. **Schwartz.** I think you really simplify the process of collecting and resolving the issue because you removed the individual concerns and issues with regard to damage claims, and you put the damage issue down to lump sum, that which the Federal Government would be entitled to under subrogation. I believe the Federal Government ought to have its right—individuals ought to have their rights subrogated to Federal Government if they accept the claim, as Congressman Eckhardt said. I think claim filing system ought to be set up so that the claim is made, and if the claim is made on one basis or another, the Federal Government takes the position of the claimant in that case, and recovery would go to the Federal Government's fund. I think there is no problem in that regard, and you would eliminate a substantial number of claimants within that lawsuit and a substantial number of issues, I believe.

Mr. **Breaux.** Thank you, Senator. Thank you, Mr. Chairman.

Mr. **Biaggi.** Mr. Forsythe.

Mr. **Forsythe.** Thank you, Mr. Chairman.

It is good to see you again, Senator.

Mr. **Schwartz.** Thank you, Mr. Forsythe.

Mr. **Forsythe.** I do not think there is really any need to say it, but there is no doubt that this committee would certainly wish that the other body would become convinced of the dire necessity of that superfund bill which we have tried twice to get through. This piecemeal approach is going to be very painful in terms of injured parties; and, to try and go back now and make whole the injured parties, of course, is doubly difficult.

So I think we are in full agreement in this kind of concern.

You may not have an answer to this, but do you have any knowledge as to what protection a standard homeowner policy provides an individual owner in this kind of liability? Is there any protection there at all?

Mr. **Schwartz.** Homeowner liability?

Mr. **Forsythe.** Yes.

Mr. **Schwartz.** I really do not have that answer as an individual. Now, most of our coastal properties are not as they are in your State of New Jersey or in the State of Massachusetts on the edge of the sea. So that the homeowners 'damages are limited in the sense that there probably were none of any consequence. The damage at the edge of the sea in Texas is damage essentially to State-owned beaches and to beaches upon which the public has a public easement. The property ownership and exercise of construction rights in our State really occurs at the vegetation line and behind the vegetation line. We have no private beaches in Texas, although we have some inaccessible beaches. Our beaches are all public, and this oil impacted the beaches themselves, but did not have an adverse impact as to individual homeowners in my judgment.

Mr. **Forsythe.** Then, in a sense, other than the State and its beaches, public beaches, the impact was the damage to business or whatever in terms of loss of business essentially rather than property damage, physical damage.

Mr. **Schwartz**. That is right. It is not physical damage loss at all in the main. It was the businesses that are oriented to a tourist traffic—well, tourists or everybody, even within the 5-mile range. Texas has a coastline of barrier islands and peninsulas, and the protection of the bay and estuary system that has saved us in this tragedy—well, if this kind of tragedy occurred offshore, off a coast where there are no barrier islands or peninsulas, say off the coast of South Carolina, and you impacted directly on beaches, you would have a major property damage consequence.

In our case, keeping the oil from estuaries is the way we protect our marine habitat, and the beaches we try to keep them cleaned up for tourists, and oil impact hurt the tourist season and hurt, in fact, the ability of a lot of people who depend on the tourist season—restaurants, hotels, tourist supplies, facilities, to manage their affairs.

Mr. **Forsythe**. I would sure have to comment, and there are two of us here from New Jersey, and we represent a major part of the beaches, and we have built on our barrier islands so we have a real problem. We are, I think, very concerned and watchful as to where we are going to go with this.

Thank you, Mr. Chairman.

Mr. **Schwartz**. There is no question that if we had supercompensation fund or superspill fund that we would be better protected.

I might add for this record that Deepwater Port Act which has been passed and which serves an excellent purpose on the gulf coast has provided a licensing vehicle for loop in Louisiana which is well on its way to completion, and provided the incentive for a license which has been offered to Texas and for which we believe we have at least the momentum to achieve a reality for that port within the near future.

In that legislation there is a $100 million fund for the specific offshore terminal or deepwater port that may be covered by such a facility. I would like the committee to know that in our plan for Texas, that Texas license, the license offered Texas provides for $50 million unlimited liability compensation fund in the first 5 years to grow to $75 million from the fifth year on, and that that fund is designed to compensate any innocent victim of any losses as a result of any incident connected with that offshore terminal.

Mr. **Forsythe**. That would also keep those tankers further off your beaches if they unloaded at a deepwater port terminal.

Mr. **Schwartz**. At least supertankers. We do not know how much effect we would have on the 50,000 to 70,000 deadweight ton tanker that comes up the channel to the refineries, but we are faced with a supertanker offloading lightering procedure in the gulf today that is substantial. That is a hazard we now have.

Mr. **Breaux**. If you would yield, I need to point out that this superport is in Louisiana, not in Texas.

Mr. **Schwartz**. There is one in Louisana now.

Mr. **Forsythe**. He is also talking about offloading that we have in the Delaware Bay that is also of concern to us.

Mr. SCHWARTZ. We are trying to bring ourselves to fruition and hopefully we will attain that goal within the end of this year, early part of this year.

Mr. BIAGGI. Mr. de la Garza.

Mr. DE LAGARZA. No questions.

Mr. BIAGGI. Mr. Hughes.

Mr. HUGHES. Thank you, Mr. Chairman.

Thank you, Senator, for a very fine statement. I notice that you did not do very much reading; it was all ad lib, and you have a good working knowledge of the subject, and I thank you.

Mr. SCHWARTZ. Thank you.

Mr. HUGHES. Let me echo the feelings of my colleagues from New Jersey. Texas is entitled to relief. I am not sure that the piecemeal approach is correct. We have a great deal of work to do to get comprehensive legislation.

The containment capability of the Coast Guard gives me a great deal of concern. You found that the containment system is inadequate. You can imagine how difficult it is in the Baltimore Canyon area or Georges Bank where the environment is much harsher than the Gulf of Mexico.

My question is, Does the State of Texas have any legislation on the books which provides criteria for the industry in connection with the lease of coastal resources?

Mr. SCHWARTZ. Let me address myself to this. When I testified before this committee, and Congressman Biaggi was chairman of that subcommittee in 1975, concerning the need for the superfund bill then, I pointed out we were at that point, and had nearly passed, a bill which I authorized for a Texas oil spill contingency fund. We funded that contingency fund with $1 million, which is minimal, at best, but which does care for our responsibilities.

We took the position, largely because of being persuaded in 1975 by Coast Guard testimony, that the Coast Guard had a capability to meet any need that might confront us in the gulf or in the bay waters of our State. We took the position that ours was an immediate emergency reaction capability. We would react immediately and minimally, but depend upon the Federal agency for our response.

The Coast Guard is saying the same thing in 1977 that they did in 1975, but the fact is, we still have 55,000 barrels of oil trailing the Burma Agate into the Gulf of Mexico for 140 miles down the Texas Coast.

We still had 150 miles of oil impact to the Texas beaches, which could have been a major threat to the estuaries of our State, which were not being contained adequately if the tides and currents had not changed after the oil passed through the barriers for 3 days.

Research and development ought to produce better equipment. The scientists claim that we have the capability of producing equipment within our known technology to meet this disaster potential, but that we have not produced that capability because we lack—and this is Dr. Parker's testimony—the national commitment to do so.

That really is what I think we are faced with.

Mr. HUGHES. I couldn't agree with you more. Those of us who have this concern asked for an additional $5 million for the Coast

Guard authorization for research and development in the areas of response and containment of spills. Obviously, we have to do more to make a national commitment in that direction because our capability is totally inadequate. The Coast Guard has to spend more time and elevate it to a higher priority.

Should we not also be encouraging the industry to handle this?

Mr. SCHWARTZ. The shocking thing about it to me is that I believe the industry has a greater capability and greater potential and a more urgent sense of need than those the Coast Guard. The Coast Guard does not like my comments.

However, I am just simply saying that I believe the need and the urgency from an investor's standpoint, from industry's standpoint, is that they have a greater priority than does a governmental agency.

Mr. HUGHES. Is that not the way it should be?

Mr. SCHWARTZ. Yes.

But when we get offshore, the responsibility is vested with the Coast Guard and the Coast Guard, like in the Galveston situation, takes the position that they are in international waters and, therefore, they make demands upon the responsible spiller, and the spiller goes back to the same kind of folks who command the vessel. They are richer and they own the ships.

Their attitude about the Texas coast is not impressive. I am not interested in what they are willing to pay to clean up the beaches after we have got the oil on the beaches. I am interested in their doing something about it at the time.

We heard on the Senate side yesterday from an MIT scientist that we are getting 1 percent of the oil at sea. We are collecting in our containment and cleanup 1 percent. That means that 99 percent either gets to the beaches or lies on the bottom. We have the capability to improve that as much as 25 percent; but it will take a substantial commitment to do so.

Mr. HUGHES. I think we have to make that kind of commitment, and we look forward to working with you on that.

Mr. SCHWARTZ. May I persuade you of one more thing?

In the compensation bill you have before you, you will not meet this situation in New Jersey or Massachusetts or any place in the United States. You will meet the situation maybe in California and certainly perhaps again in Texas; but the recovery of individual compensation for people on the Texas coast for damages from the Federal Government will be a difficult proceeding, and what is much more difficult, they will have to suffer for being friendly with Mexico, and having Mexican petroleum products.

If it is in the national interest for us to suffer the risk, then it is in the national interest to give us compensation and then proceed to replenish these funds from national sources.

If it has to be a levy on a product, then so be it. If it has to be from recovery from Mexico, then so be it. You cannot say to an individual who suffered a loss, who says your country needs you? Your country needs you, but not to take a loss in the summer of 1979 unless you are going to stay warm with some of the product.

Mr. HUGHES. I commend you for a very fine statement. You gave us a lot to think about.

Mr. SCHWARTZ. Thank you.

Mr. **Biaggi.** The gentleman points out that we authorized another $5 million to deal with containment and research and development on the high seas. It is an area which has not developed sufficient competency.

You testified that the private segment has placed that particular concern on a higher priority. We appreciate it.

But what in fact have they done? What new technology have they developed?

Mr. **Schwartz.** Well, they haven't done it on the offshore except in supertanks or superport capability offshore somewhere. Efforts are primarily designed for shore facilities, bay shores, and channels. These companies have their own containment equipment and skimmers and are faced with a very high degree of culpability to clean up, and to do it effectively and quickly whenever anything occurs, and at least in our area, it is my experience that they have that response.

The problem is, we don't have, apparently, the capability of using their equipment 5 miles offshore Galveston to deal with the *Burmah Agate* situation. This is a little strange to me, and I want you to address yourself to this.

We receive our containment equipment or the booms that have been developed by the Coast Guard by having those booms deployed from somewhere else, either on the east coast or the west coast or the midcoast area somewhere.

It occurs to me that since we have the highest degree of traffic and we are now experiencing the highest degree of stupidity in terms of collisions and lack of ability to avoid collisions, that we are perhaps entitled to some more of that equipment where the idiocy is.

Mr. **Biaggi.** Do you think that is provincial or universal?

Mr. **Schwartz.** I think it is provincial in our case. Because of high-density traffic off the Houston Harbor, our area has a higher concentration of dense traffic in an area where we also have a substantial offshore drilling operation going on. There are a substantial number of platforms offshore Louisiana and Texas that don't exist off New Jersey, Massachusetts, or any place else, and with an impacted tanker traffic as a result of the pressures that we suffer and, in addition to that, the offshore drilling platforms that exist in the gulf, we simply are uniquely situated to have more accidents than our fair share in terms of normal accident-prone conditions might dictate.

Mr. **Breaux** [presiding]. Are there any other questions of the Senator?

Congressman Wyatt?

Mr. **Wyatt.** I deeply appreciate Senator Schwartz being here and bringing us his testimony. He certainly is the most astute and knowlegeable person in the Texas Legislature in regard to the coastal zone and what takes place in and around our waters and in waters around the Texas gulf coast.

He is chairman of the Texas Coastal and Marine Council. I don't think we could have had a person today who has any more knowledge about the problems of industry and the problems of environment that we are experiencing in Texas and along the entire gulf coast of the United States; so I want to say again, Senator, how much we appreciate your appearing here and testifying before this committee.

Mr. SCHWARTZ. Thank you, Congressman Wyatt.

The purpose of my being here is because of my intense interest in this, among other causes, in the last 25 years.

Within the last 12 months, there is not a foot of my senatorial district that has not had the threat of impact by a major oil spill of disastrous proportions. That is a pretty big hunk, since I represent half of the linear district. There is only 70 or 80 miles of the linear distance of the Texas coastline not touched by the *Burmah Agate* spill or the Ixtoc spill since the spring of 1979.

So it is a major concern to any public official in the State of Texas, and it should be to all public officials who are concerned with the national interest as well as with the protection of the individuals in our society.

Mr. BREAUX. Thank you very much for your assistance. You are always welcome to appear before this committee.

Mr. SCHWARTZ. Thank you.

Mr. BREAUX. Our next witnesses are Mr. Frank Cox, State coordinator, Governor's division of disaster, Emergency Services, representing the Honorable William P. Clements, Governor, the State of Texas, and Mr. Doug Caroom, chief, environmental protection division, office of the attorney general, State of Texas, representing the Honorable Mark White, attorney general, State of Texas.

While they might have different approaches, they both represent the same State.

Mr. Cox, we are happy to see you again.

Please identify your colleague and we will receive your testimony.

STATEMENT OF FRANK COX, STATE COORDINATOR, GOVERNOR'S DIVISION OF DISASTER EMERGENCY SERVICES, REPRESENTING HON. WILLIAM P. CLEMENTS, GOVERNOR, STATE OF TEXAS, ACCOMPANIED BY JOHN LATCHFORD, TEXAS DEPARTMENT OF WATER RESOURCES, AND DOUG CAROOM, CHIEF, ENVIRONMENTAL PROTECTION DIVISION, OFFICE OF THE ATTORNEY GENERAL, STATE OF TEXAS, REPRESENTING HON. MARK WHITE, ATTORNEY GENERAL, STATE OF TEXAS

Mr. COX. Thank you, Mr. Chairman. It is a pleasure to be with you. I have with me John Latchford, who is a member of the Texas Department of Water Resources, who has primary water capability and response in this type of incident.

You have my statement. Did it get here in time?

Mr. BREAUX. It did.

It will be made a part of the record at the conclusion of your testimony. You may summarize it.

Mr. COX. I would like to begin by saying that we appreciate the opportunity to appear at this hearing. On behalf of the concerned citizens of Texas, I thank you.

My statement represents the combined positions of the Governor's office and the three State agencies most directly involved—the department of water resources, the parks and wildlife department, and the emergency management division.

First, this legislation addresses a matter of great public concern—particularly for Texas, but also for other coastal States. The problem of oil spill damage compensation could have significant international and domestic implications in our quest for energy sources if left unresolved. Perhaps this immediate need contributed to the issue which H.R. 5577 addresses.

The situation is unique in many respects.

I won't go into the situation of what makes it unique other than to remind you that we have an international problem and this could be a subject of tenuous negotiation during the future.

Existing Federal financial assistance programs are inadequate to meet the impact of Ixtoc I oil on the Texas coast.

The Federal Disaster Act, Public Law 93-288, primarily addresses physical damage to property owned by individuals. Economic loss, or dislocation, is only indirectly addressed in that a Small Business Administration emergency declaration is automatic when the President implements Public Law 93-288. This act, by the way, has been implemented five times in Texas during the current calendar year.

Of course, we have had very little physical damage at this particular time. The only Federal assistance to victims of Ixtoc I are loans from SBA—loans which must be repaid, with interest, at the victim's expense.

As a result of looking into the programs, the Governor has written the Texas delegation asking for this type of legislation.

When H.R. 85 was introduced, he wrote to the Texas delegation asking them to support it. When this legislation was introduced, the Governor wrote Congressman Wyatt asking for expeditious action. He also sent a copy of that letter to the entire Texas delegation.

The scope of present economic losses is difficult to assess. However, we do know that as of November 21, 1979, the Small Business Administration offices in Corpus Christi and Harlingen had interviewed 538 applicants. These represented owners and operators of small businesses. We know that the Small Business Administration has accepted 196 of those applications, with 141 of those being approved, for slightly under $5 million.

The environmental damage is yet to be ascertained. We have no idea, over the next few years, what the total environmental impact may be; therefore, we support the environmental impact studies that have been proposed.

We hope that the State will be allowed to participate as a partner. The State resources or the zero base line data that Senator Schwartz used will be used as a point of departure. We feel that there is a need for a damage assessment program that will continue long enough to ascertain if there has been an environmental impact over and beyond that which we know insofar as Red Fish roe is concerned.

In regard to the fish hatcheries, there is a statement from the Director of Fisheries, of the Texas Parks and Wildlife Department, attached to my statement. I would like to refer you to that.

It shows the capability exists to implement that section in the event it passes intact. We do feel that the operational response, even though it may be lacking technologically, the Coast Guard bent over backward to balance conflicting demands for types of responses.

We want to congratulate and commend Admiral Yost, Captain Manson particularly and numbers of other employees who were involved in the operational response to this episode.

If I may summarize, this is an unprecedented event which has adversely affected the economic stability of a number of Texas businesses. Because of the magnitude of this incident, these businesses—through no fault of their own—do not have the financial means available to cope with this spill and its impact on their means of livelihood.

Since the Mexican oil spill is an international problem, a national response is necessary. We believe that H.R. 5577 will provide that response but would also hope that a comprehensive statute will be approved in the near future because, without a doubt, the Bay of Campeche will host hundreds of oil wells within the next decade. And it is going to look like a porcupine with oil wells.

Mr. Breaux. Thank you for your presentation.

Mr. Doug Caroom.

Mr. Caroom. Mr. Chairman and members of the committee, I am here on behalf of Attorney General Mark White. The attorney general expresses his regrets that he could not be here.

I have presented a written statement on his behalf and I will briefly summarize it.

The attorney general wholeheartedly supports the legislation proposed in H.R. 5577.

We have filed suit in the admiralty limitation of liability proceeding initiated by Sedco for compensation of damages and reimbursement of expenses incurred by the State of Texas.

Additionally, we have filed suit against Permargo, the privately owned Mexican company responsible for drilling the Ixtoc I well.

From our involvement in this law suit and our familiarity with legal process, we are very comfortable with recommending H.R. 5577 as a preferable means of compensating claims rather than the legal process in this instance.

I would suggest three reasons for that.

First, the compensation of damages will occur much quicker. People will get the money while they still need it.

Second, not referring to this litigation in particular, certainly, but it is an observable phenomena on occasion, when claims get into the legal process, they get somewhat inflated. This proposed legislation would discourage such inflation because it allows for compensation of claims through the appraiser or adjuster method, which assures that reasonable claims are processed rapidly and require further proceedings on claims that are not agreed upon.

Finally, I think the peculiar aspect is the international compensation and I think that provides a compelling reason in this instance to adopt the legislation as written in H.R. 5577.

If, in the judgment of the Federal Government it is in the national interest to forego litigation against Pemex, it certainly is unfair to ask the people of Texas to bear that burden which is being imposed for the national interest.

The only fair thing to do would be to spread the burden across the Nation which is receiving the benefit. This allows the United

States, which is in charge of the international relations of the oil and gas negotiations to handle the claims which have been subrogated and it seems a much more reasonable resolution than litigation.

I would be happy to answer any questions the committee has within the boundaries of what I am permitted to say, since we have a law suit pending.

Mr. **Breaux**. Thank you very much for your testimony.

You indicated who had been joined as defendants in the State of Texas. Pemex was not mentioned.

Are they not a party to the suit as a defendant?

Mr. **Caroom**. That is right. We did not sue or we have not yet joined Pemex in this litigation because we wanted to allow the State Department and the Federal Government an opportunity to conduct negotiations and see about a voluntary settlement with Mexico. At some point in this litigation, it in all likelihood, will become necessary to join Pemex, and when it becomes necessary, we will.

Mr. **Breaux**. But you have filed a law suit against Permargo?

Mr. **Caroom**. Yes, sir.

Mr. **Breaux**. What is the difference?

Mr. **Caroom**. It is a private corporation.

Mr. **Breaux**. Is Sedco a party to the suit?

Mr. **Caroom**. Yes. It is a party which initially filed the litigation.

Mr. **Breaux**. What damage, if you could summarize for this committee, has been incurred up to this date as a result of the spill? Please give that to us in general terms, not in dollars and cents.

What are we talking about?

We had testimony at the time of our hearings in Corpus Christi about some problems that people were fearful of. We were talking about potential damage down the road. We are now a little further away in terms of the time standpoint. What damage have the citizens suffered as of the date of the spill?

Mr. **Cox**. The primary damage is economic loss or economic dislocation due to loss of the tourist trade and tourist-related industries.

I wish Senator Schwartz were here. He could talk to you about it.

Mr. **Schwartz**. I am here.

Mr. **Cox**. Want to talk about snowbirds?

We know 141 applications for disaster loans have been approved by the Small Business Association. Most of these businesses are mom-and-pop-type operations. They cannot wait for 2 or 3 years of litigation to stay in business. Only 141 at this point have had their interest-bearing loans approved. That is just under $5 million.

Mr. **Breaux**. Those filing disaster damage. Is this predominantly tourist-type and related damages?

Mr. **Cox**. Yes. No physical loss applications have been submitted to my knowledge.

Mr. **Breaux**. How about any loss to fishing, red drum, sports fishing or the shrimping industry?

Mr. **Cox**. Not to my knowledge. There is an involved statement and I should not try to make it. There are some gulf shrimpers who, because of the oil spill, moved north to fish off Galveston. They had three major floods. The influx of freshwater almost eliminated bay shrimping and the migration of the white shrimp-brown shrimp was eliminated. The gulf shrimpers moved north to keep out on the oil. When they got there, they found the freshwater killed all the shrimp. We applied for a SBA declaration to take care of the shrimpers. The National Marine Fisheries Service demonstrated a considerable loss.

Mr. Breaux. It is not a loss attributed to the oil spill?

Mr. Cox. Indirectly.

Mr. Breaux. I thought you talked about the influx of freshwater causing the problem.

Mr. Cox. The fleet moved its fishing boats to Galveston because of the oil spill. When they moved, they found the shrimp were not there because of the freshwater. That is the reason I hesitated to get into this statement.

Mr. Breaux. That is complicated, whether it is related to the oil spill or additional freshwater being pumped in the gulf.

Is the State of Texas, department of conservation or your fishery and wildlife department, whatever it is called, making a study to try to assess the loss to the fishing industry, Mr. Cox?

Mr. Cox. Yes. We had to submit a statement to them along with the SBA.

Mr. Breaux. Their study has been completed?

Mr. Cox. There is a preliminary survey in.

Mr. Breaux. They told us at the Corpus Christi hearings that it was mostly a projected problem which would be answerable not in this season, but within the next season. Within a year you would be able to determine whether any of the shrimp damaged by the oil-spill would show up today or the next season?

Mr. Cox. That is true. I heard the same testimony, Mr. Breaux. When the Governor's office got the request for this assistance from the Shrimpers Association, we were taken aback because the testimony was in conflict with that in Corpus Christi. We had to document the request. We went to the marine fisheries people and they stated the shrimp production off Galveston Bay was 40 percent of what it had been. This has been proven. We have to go through another tourist cycle and fishing cycle to find out what happened.

In face of the testimony you and I both heard, we got the request. We had to run it down. We did get sworn statements from the State people and Federal people and submitted that as documentation and a request went to Mr. Weaver of SBA and in the production or harvest, the figure is something like 40 percent this year as opposed to last year which, to me, was astounding. That flew directly in the face or contradicted everything we heard previously in Corpus.

Mr. Breaux. The act that Congress passed earlier which provided compensation to the Texas City disaster, how would you compare what Congress did at that time from a legal standpoint as far as being a precedent for our acting this time on this particular spill?

Is that a precedent we can point to?

Congress compensated the victims there. We should provide compensation for this particular disaster, too, should we not?

Mr. Caroom. I am not at all familiar with the 1970 legislation involving Texas City. It sounds like a precedent. The bill proposed is similar to the superfund bill that has gone through the House several times.

Mr. Breaux. The major difference being that one comes from a tax by the ultimate users and this comes out of the General Treasury. That is a major difference.

Is there any legal theory that would provide the basis and need and justification, if you will, for the type of legislation we are considering that you would be familar with?

Is it just a matter of equity or what?

Mr. Caroom. I think it is basically a matter of equity. We are considering spreading the loss that has been imposed by nature or by this event on the Texas coast to the Nation as a whole for the sake of international relations. I certainly think that is an equitable thing to do.

Mr. Breaux. All right.

Congressman Wyatt.

Mr. Wyatt. Thank you, Mr. Chairman.

Are you familiar with the Texas City legislation?

Mr. Cox. I have not reviewed it recently. As a native Texan, I am certainly familiar with the purpose of it. It does set a precedent. This is equity. The damages picked up as a result of the Texas City Special Purpose Act were primarily physical damage, destruction of houses, businesses, cars, and, of course, lives.

Here we are dealing primarily at this point in time with economic loss.

Mr. Wyatt. The numbers you have given are the best estimates at this point in time?

Mr. Cox. Yes, we hope to have some updated figures. The Small Business Administration is up to their necks in Texas with all sorts of problems, so they are running a little behind. If you will allow me to reemphasize something I said earlier, these are loans, 7⅜ percent interest. These people are having to pay back interest in the national interest.

Mr. Wyatt. Interest and paying on the principal?

Mr. Cox. Yes. It is in a national cause.

Mr. Wyatt. Mr. Caroom, has the attorney general of Texas sued on behalf of the people of Texas who incurred these losses?

Mr. Caroom. On behalf of the people as a whole, the body politic. He has not sued on behalf of individual persons who have been damaged. These people must bring suit themselves and represent themselves.

Mr. Wyatt. Have you had a working relationship with the Department of Justice?

Mr. Caroom. Yes.

Mr. Wyatt. Have they given you all the assistance that is possible for the Department of Justice in this regard in terms of international law, and what may or may not be Texas standing in international courts or the courts of Mexico?

Mr. Caroom. Our relationship with the Department of Justice is just now getting started. They have just come into the litigation recently, about a month ago. To date, I am very pleased with our relationship and completely happy with the Department's cooperation.

Mr. **Wyatt**. The Department of Justice filed suit against Sedco in Federal court. That was in order to protect the rights of the Justice Department to sue because of action being taken by Federal courts?

Mr. **Caroom**. That is correct.

Mr. **Wyatt**. Limitation of liability?

Mr. **Caroom**. That is correct.

Mr. **Wyatt**. Is that the only suit that the Department of Justice has filed?

Mr. **Caroom**. That is right. The Department of Justice has not sued Pemex or Permargo.

Mr. **Wyatt**. Only Sedco?

Mr. **Caroom**. Yes.

Mr. **Wyatt**. Are you familiar with any movement on the part of the Department of Justice to file suit against Pemex or Permargo?

Mr. **Caroom**. I have no information.

Mr. **Wyatt**. Thank you.

Mr. **Donnelly** [presiding]. If special compensation legislation were enacted by Congress, should the Federal Government seek recoupment from claims made from the Republic of Mexico?

Mr. **Cox**. I am not sure I understand the question. I believe you are talking about subrogation.

Mr. **Donnelly**. If we pay compensation, should we receive compensation?

Mr. **Cox**. I certainly would hesitate to recommend or agree to duo compensation. Any businessman who suffers a loss, should not be compensated twice, but I think he should be compensated. Any recovery the Federal Government makes, certainly should be subrogated.

Mr. **Donnelly**. Mr. Caroom, could you respond to the same question?

Mr. **Caroom**. If I understood the question properly, I agree that we don't want double recovery. The legislation proposed provides for subrogation and then would allow the Federal Government the option to pursue these claims and their recovery against Mexico, or if it is in the national interest, refrain from doing so for the sake of international relations. I think that is where the decision should be.

Mr. **Donnelly**. In the absence of Federal legislation, would you consider bringing in Pemex in the pending litigation?

Mr. **Caroom**. In the absence of Federal litigation or some other out-of-court settlement, it is quite likely we will have to bring in Pemex before this thing is finished.

Mr. **Donnelly**. Do you think this would have an adverse impact on our relationship with Mexico?

Mr. **Caroom**. Litigation of this sort is never pleasant. In all likelihood it would.

Mr. **Donnelly**. Thank you.

I have no more questions, thank you very much, gentlemen.

Mr. **Biaggi**. Mr. de la Garza.

Mr. de la Garza. If I might, Mr. Chairman, I would like to introduce the next panel representing the communities of South Padre Island and Port Isabel, Tex. We have Mr. Kirby Lilljedahl who is city manager and assistant to the Honorable Glen McGehee, mayor of South Padre Island, Tex., and Mrs. Cathy Camacho who is a member of the City Council of Port Isabel, which is across the bay from South Padre Island. She is representing the Honorable Quirino Martinez, mayor, Port Isabel, Tex.

Mr. Lilljedahl, as you know, is representing Mayor McGehee whom some of you met in Corpus Christi. We also have Ralph Thompson who has recently been in city government, as mayor of a neighboring city, but who is now with the chamber of commerce in South Padre Island.

This panel consists of representatives of the area which was most impacted economically. They will tell you their story.

I might say that after they finish, I will make a brief statement and mention the community of Port Mansfield which, unfortunately, was not able to send a representative for this hearing.

This group will give us, I think, a very good overview from their standpoint of what the situation was, is, and what we can look forward to in the future with respect to the spill related to Ixtoc I.

Mr. Lilljedahl or Mr. Thompson.

STATEMENTS OF A PANEL REPRESENTING THE COMMUNITIES OF SOUTH PADRE ISLAND AND PORT ISABEL, TEX.: KIRBY LILLJEDAHL, ASSISTANT TO HON. GLEN McGEHEE, MAYOR, SOUTH PADRE ISLAND, TEX.; AND RALPH THOMPSON, REPRESENTING SOUTH PADRE ISLAND TOURIST BUREAU; ACCOMPANIED BY MRS. CATHY CAMACHO, MEMBER, PORT ISABEL CITY COUNCIL, REPRESENTING HON. QUIRINO MARTINEZ, MAYOR, PORT ISABEL, TEX.

Mr. Lilljedahl. Mr. Chairman, we are not sure that you have our statements because they came so late.

With your permission, I would like to read it into the record.

With the Coast Guard mobilization relating to the Ixtoc I oil spill—about August 7, 1979—we can mark our decline in economic activity. This dramatic loss of business occurred almost 2 weeks prior to the appearance of any oil on South Padre Island beaches. This was the result of national and local media reporting.

Oil did impact on South Padre Island beaches in late August and early September and appeared intermittently for 3 to 4 weeks. However, the economic damage had been done and we have not yet recovered, nor can we determine when our overall problem will be resolved. Of great concern to us is what the Spring will bring when the currents and tides turn back north in March or April. To our knowledge, the Ixtoc I has not been completely capped to this date; consequently, we may be faced with a similar situation during the first half of 1980.

We took some data from the financial records of the city. It has been some 6 months from the impact. Reporting systems have a lag time. We do not have any specific information except to indicate while we have been enjoying a 20 to 25 percent economic growth in the last three years, the third quarter of 1979, if the numbers were adjusted for inflation and rate increases, would show that we would actually suffer a negative growth in economics.

If the third quarter data is adjusted for inflation, we suffered negative growth during the third quarter of 1979. Because of the lag time in reporting, sales tax data is not available, nor is fourth quarter information available. The barometer we use for overall economic activity is the hotel-motel occupancy tax, sales tax and mixed beverage tax.

In checking with the major hotel-motel operators on Tuesday of this week, the general comment on the level of business I received indicated that September, October and November is off about 25 percent per month and is continuing at about this level into December.

The Hilton Sea Island Resort and the Holiday Inn, two of the larger hotels on South Padre Island, have reported losses in room rentals alone of more than $400,000 thus far due to the oilspill and its publicity. Since these two hotels represent approximately 10 percent of the total room rentals on the island, the total losses to all properties can be considered to be at least $4 million. Expanding on these statistics, it is considered that the cost of room rental represents 25 percent of the total expenditure of a visitor to South Padre Island. Thus, when the cost of food, beverage, and other retail sales is added, the total economic loss to island businesses thus far would exceed $16 million.

It should also be pointed out that, with the exception of 3 weeks during August 1979, all of the aforementioned losses were incurred during what is traditionally a slow season. The long-term effect of the oilspill and its publicity will not be fully realized until we again experience a traditionally heavy tourist season.

Texas law requires that hotel-motel tax moneys be used for promotion, advertising, and support of the tourist industry, and we use these funds for that purpose only. We are now faced with the probability of having less funds available in 1980 than in 1979. As a result, our tourist bureau is considering borrowing money for advertising in an effort to regain our lost business.

South Padre Island is a town of about 700 permanent residents. Heretofore, our daily average population is between 20,000 and 30,000, with peaks at over 100,000. Therefore, we have highs and lows in economic activity, and we are accustomed to dealing with such seasonal changes.

It is far too soon for us to assess our gross damages. We believe it may be as late as August 1980 before we can reasonably ascertain the immediate economic loss. Long-term damage to our ecology will be far more difficult to assess. The excessive removal of sand from the beach during cleanup operations may accelerate erosion of beaches and further undermine our economic base. The town now feels that it must somehow rapidly expand development programs that would normally require several years to complete. These programs would be in the area of erosion control and beautification.

Because of the vast economic loss suffered by the hotel, motel, and commercial interests on South Padre Island, we would like to respectfully ask your favorable consideration of H.R. 5577. Our business community has suffered great losses through no business decision made by our business people, and for which no insurance can be purchased.

If I could, I would like to expand on some comments made earlier by Senator Schwartz in the field of safety. As I can recall Senator Schwartz' comments, there was a 70-day lag from the time the oil impacted on us or the mobilization process began. We do not yet know what action was taken either by the United States or by Mexico in trying to control this. Later, of course, a lot of information was made available to us.

I think we have to admit that Mexico or Pemex came up with a good oil well here in the Bay of Campeche and I believe that this particular condition has probably the potential to occur again, Mr. Biaggi. We would hope that either this committee or whatever authority is required, would work some binational agreement with Mexico and other countries if that is necessary so that a better effort could be made to control these kinds of situations before they impact on our coast.

Thank you, Mr. Chairman.

Mr. **Biaggi**. I am not sure whether you are familiar with the superfund bill. It provides comprehensive compensation for damages. Had that been in place, the victims of Ixtoc I would have been compensated. We regret that there is a delay in the other body with relation to its enactment, but perhaps this incident might give them additional incentive to move that legislation along. At this time, it is Ixtoc I. Another time it will be some tanker up in New England or wherever. Then there will be a hue and cry throughout the country and from environmentalists for some legislation.

This committee has functioned well and has produced a viable legislative mechanism to respond to concerns of this nature. We would urge all of those interested parties to activate themselves in attempting to urge the other body to move that legislation along.

Mrs. Camacho.

Mrs. **Camacho**. Mr. Chairman and committee members, my name is Cathy Camacho. I am one of the elected city commissioners from the city of Port Isabel. I want to thank you on behalf of our city for taking an interest in the most serious disaster our area has ever had to deal with.

The city of Port Isabel has a population of approximately 3,500 residents, and it is just across the causeway from South Padre Island (see exhibit A). Our city is totally dependent upon the tourist and the shrimp industry—hopefully another speaker will touch on the shrimping industry. A majority of our citizens that live in Port Isabel either depend directly on the shrimping industry, or they work on South Padre Island, in the various tourist facilities and business.

When there was a loss of employment on the island because of the disaster, this put a lot of our citizens out of work, thereby causing the city of Port Isabel and its inhabitants to suffer an economic hardship that was due to circumstances totally beyond our control. We also have a fair amount of direct tourist activities, and these likewise suffered economic losses.

At this time, we do not have any substantial figures to show this loss and it will take until next August to start to have sufficient comparative data to indicate our losses. But, we do know that over 100 SBA loans were granted, and some of these were for citizens of Port Isabel for their business losses. So this can surely give you some indication that there was and is a definite loss and a definite need for this grant.

As South Padre Island has indicated to you by its sales tax figures and hotel-motel tax figures, there is a loss; and we feel we can draw a comparison, because anything that has an adverse effect on South Padre Island will definitely have an adverse effect on the city of Port Isabel. The environment on the island has certainly been adversely affected by this disaster; but the long-range effect of this cannot be fully realized for years, and we feel that our city will surely feel these adverse effects for years to come.

As you can tell by now, at this time there is no way of knowing just how badly we have been damaged, but we could possibly be damaged more in the future given the uncertainty of Ixtoc I and its present condition.

Thank you.

Mr. BIAGGI. Do you know the total of SBA loans in dollars?

Mrs. CAMACHO. No, I do not.

Mr. BIAGGI. Mr. Thompson.

Mr. THOMPSON. Thank you. Thank you, Mr. Chairman.

I have a statement to submit on behalf of the Port Isabel-South Padre Island Chamber of Commerce and the Port Isabel Merchants Association. I, myself, am executive vice president of the Padre Island Tourist Bureau, and we are charged primarily with the promotion of tourism and identifying South Padre Island as a tourist resort.

This statement consist of a cover letter for a survey conducted by the South Padre Island-Port Isabel Chamber of Commerce in which they obtained some losses by businesses in various categories. These figures were presented in percentages. As Mr. Lilljedahl pointed out, our best calculation, based on the losses of two major hotels and the formula we used in computing total tourist expenditures, were $16 million on the Island and could very well approach $20 million.

In the course of events surrounding the recent Ixtoc I oil spill, we feel that business interests in the Port Isabel-South Padre Island area have been overlooked.

Business in this area has been seriously affected, first with the obvious impact of lost tourist trade in the peak of the season, and second, with the long-range effects of the oil spill. Oil is still coming ashore in small quantities and tourists show a reluctance to commit for vacations in the future as a result. We do not feel our problems are over.

Those of us living in high risk coastal areas pay higher insurance premiums for protection against hurricanes and floods. Oil spills cannot be insured.

We feel the U.S. Government has a responsibility to protect its citizens against the actions of foreign government and foreign business be they accidental or intentional.

While we are grateful for the recent SBA disaster declaration, we feel the relief is only temporary and, therefore, need the type of relief offered under H.R. 5577.

Attached is a survey of the economic effect on businesses in the Port Isabel-South Padre Island area as compiled by the chamber of commerce.

I won't go into the details. This is signed by Bill Heinze. I hope it will be made a part of the record.

Mr. BIAGGI. It will be made a part of the record at the conclusion of your testimony.

Mr. THOMPSON. Our hope is twofold that the oil will not return next spring and summer with the change of wind conditions, and that we will be able to meet the challenge of trying to convince the public that it is all right to come to South Padre Island and Port Isabel and restore confidence in our beaches in Texas. This will be difficult.

The media publicity surrounding the event has had a far-reaching effect. We will not know how successful we have been in our advertising and promotion in restoring confidence of the traveling public until we have experienced a peak tourist season such as winter, spring break, Easter, and the summer months from Memorial Day to Labor Day—our peak months.

There is a possibility that our losses at this point are very minimal compared to potential losses.

Ixtoc I is just the first of many, many wells that are going to be drilled in the Bay of Campeche and the Gulf of Mexico, any one of which can pose the same potential threat to the gulf coast of Texas, including Texas, Louisiana, and other States bordering the gulf coast.

We ask that every consideration be given to set up some form of response team internationally, or whatever, to react to situations such as this in the future to prevent the magnitude of the spill of Ixtoc I, feeling that trying to cope with an oil spill once the oil reaches the beaches, is virtually impossible. The only solution is to try to contain it at the well site and we need cooperative efforts of all nations who are equally threatened with this as fuel development continues throughout the world, so we would ask your concern in that.

Finally, I would say on behalf of South Padre Island and Port Isabel, that we commend the Coast Guard and want to present our gratitude for the outstanding job that they did in the South Padre Island and Port Isabel area, both in containing the oil spill and preventing it from getting into Laguna Madre in great or significant quantities, and their outstanding job in cleaning up what oil impacted the beaches of South Padre Island. They did a good job under difficult circumstances. We feel they did the best they could, and we thank them for it.

Mr. BIAGGI. Thank you. You recommend that we have an international response team. You stated that the Coast Guard did respond.

Did the Mexican Government respond in any fashion?

Mr. THOMPSON. No, sir. In the area of South Padre Island, the only response we got was from the Coast Guard and NOAA, the National Oceanographic people, and those contractors engaged by the Coast Guard to conduct the operations. We got no assistance, whatsoever, from Mexico or, for that matter, from the oil industry itself anywhere.

Again, the problems of the future could be far greater than those of today as we continue exploration and this international response team is so essential because as you know, Mr. Chairman, or I would hope you do, that the containment of that well was much criticized in many areas and, in fact, the United States and its Coast Guard were not welcomed or even invited to participate in the containment of that well until long after it had reached great proportions. I would hope that this international response team that I referred to could set up negotiations between the countries concerned so that they could respond immediately without having to wait for someone to invite them to come in and assist and we feel very seriously that has been part of the problem with Ixtoc I, that it reached far greater proportion than it might have, had a national or international response team been available.

Mr. **BIAGGI**. Thank you, Mr. Thompson.

Mr. Breaux?

Mr. **BREAUX**. No questions. I just want to thank the panel for coming to Washington and for the treatment that you gave to the committee and the courtesy you extended to them when we were down in the Texas area.

I think you have really done your homework in putting together the facts necessary for the economics of the legislation.

There is something that I would urge you to do. I would ask you to urge the people that you deal with to continue to keep records of actual and potential losses that they incurred as a result of this. That is the only way we can justify the compensation in setting a figure on that amount.

Thank you, Mr. Chairman.

Mr. **BIAGGI**. Mr. Forsythe?

Mr. **FORSYTHE**. I have no questions.

I want to thank the witnesses.

Thank you, Mr. Biaggi.

Mr. **BIAGGI**. Mr. de la Garza?

Mr. **DE LA GARZA**. Mr. Chairman, two things.

One, I want to personally echo the statement made by Mr. Thompson with regard to the Coast Guard. I know there are differences of opinion, but as far as I am concerned, from the very first contact I had with the Coast Guard up until the very end, and being on the beach with them there in south Texas, South Padre Island, and Port Isabel, their response was always in the highest tradition of the Coast Guard even though they may not have had the technology for this type of spill.

Possibly, there might be some need to look into that, but the response, considering what they had available, was above and beyond the call of duty. I would say they reacted in the finest tradition of the Coast Guard and I join Mr. Thompson and the group in repeating that.

I would like your assistance to make one thing clear, Mr. Thompson and Mr. Lilljedahl, and that is the difference between this type of spill and one where there is a single impact on the beach that can be recovered and is forgotten. I want you to help me explain to the members and for the record the fact that in this case it is a continuous impact. There are businesses yet suffering because of the overall impact.

Mr. Thompson mentioned the media. There was not anything else worthwhile for the media to report at the time, but this, and if you looked at the television here in Washington you would think that all of south Texas was inundated with 6 feet of oil on the beach. So could you comment on that, Mr. Thompson, as to what the real economic impact was and to what extent it continues? You also mentioned that you do not know when it would end.

Mr. THOMPSON. Yes, Congressman, there are many who say that the media publicity surrounding the oil spill had a greater effect on our economic loss than the oil spill itself because, in fact, because of the ability of the Coast Guard to cope with the situation as well as they did, the beaches of South Padre Island, that is the resort beaches in the developed area, were quickly cleaned up.

Our first impact from oil began in early August, but by Labor Day weekend, the Coast Guard and their contractors had those beaches virtually cleaned up and there was no reason for anyone not to come to South Padre Island and enjoy themselves. Yet, because of the media publicity surrounding the event, and I can recall after that first week of national coverage our occupancy rate dropped from 100 percent occupancy to less than 30 percent, and it continued that way on through Labor Day and, for that matter, as we went into the off season following Labor Day, it has remained that way. So the media effect had a definite bearing on the total situation and a continuing bearing because it is a question now of how do we convince the public that things are still not as they were shown and as seen on television and the national press?

Our job at South Padre Island and the tourist bureau is to try to accomplish this. We expended $80,000, which was all the money we had available, for our fall-winter advertising program. We concentrated it throughout the Midwest, the major cities of Texas and the major cities of Ontario, Canada, where our major markets are. We taunted them with "Come on down! The coast is clear!"

We hope it has made an impression. We put in a watts line called South Padre Sundial where people could call and get reports on weather conditions. This was all done in the hopes of restoring public confidence on the quality of our beaches. We won't know how effective our program has been until we get into our winter season which, traditionally, begins building in mid-December and continues through April, so there is still an unknown there.

As to how much impression remains with the public as to the condition of the beaches and have we been successful in turning that image around, as Mr. Lilljedahl commented in his prepared statement, we are going to expend as much money as we can afford in a spring-summer advertising program which is more critical since the beaches are of interest to the spring and summer visitor. We are developing a $100,000 program and if need be, moneys will be borrowed to meet that amount. It may not sound like a lot of money, and compared with places in the United States like Florida and California that have great amounts of money to spend on promotion and advertising, but this money I am mentioning, this $100,000 is a big hunk of money in terms of South Padre Island.

We hope it will work but, again, we have no assurances that it will. There is always the risk and possibility that with seasonal changes and unknown factors, we may again have oil on our beaches but, God forbid. That is the challenge we are faced with.

Mr. **de la Garza**. Thank you very much, Mr. Chairman.

Mr. **Biaggi**. Mr. Wyatt.

Mr. **Wyatt**. Thank you, Mr. Chairman.

Mr. Thompson, you stated with the work you had done at South Padre Island, in terms of the tourist bureau, that you made a preliminary estimate of about $16 million worth of damages; is that correct?

Mr. **Thompson**. Yes, sir.

Mr. **Wyatt**. Would it be fair to say you could transpose those same numbers to the Port Aransas area? Possibly it would be less because they don't have the same numbers?

Mr. **Thompson**. They are not as heavily developed and it is a different type of development. The Port Aransas area, and Mustang Island received a greater impact of oil than we did at South Padre Island by some freak situation involving the currents offshore. I am sure their proportion of losses were every bit that much.

Mr. **Wyatt**. So around the national seashore, particularly on Mustang Island, and North Padre Island, we could transpose those estimates.

We did not ask people to come from Port Aransas because the testimony would be similar, but the impact is the same.

Mr. **Thompson**. Mr. Wyatt, if I might point out, all the areas around there even if they did not suffer equally from the oil spill, suffered from the media coverage. It is difficult for someone living in Canada or in some remote place to distinguish between Galveston and South Padre Island or Corpus Christi or Ramsey. They simply consider it the Texas coast. Even now we are suffering from the effects of the spill off Galveston, even though we have had no impact from that oil. We are all in it together. What hurts one, hurts the other.

Mr. **Wyatt**. Is it not true that in the last month or the last 3 weeks, there has been oil on the beaches or tar balls assumed to come from the troughs just off the beach?

Mr. **Lilljedahl**. That is correct.

Mr. **Wyatt**. That is coming in on occasion from what oil has sunk during the time of the spill when it was off the coast or on the coast?

Mr. **Lilljedahl**. We are still experiencing that intermittently. It is not to the same quantities that we had in August and September. We do have it practically everytime the wind switches.

Mr. **Wyatt**. Even in the winter seasons when the northers come, it does create problems?

Mr. **Lilljedahl**. Yes.

Mr. **Thompson**. Mr. Wyatt, if I may sir, the Coast Guard still has crews available in South Padre Island, and in those instances they assist in continuing our beaches. I would like to mention also that the town of South Padre Island about a year ago decided to increase hotel occupancy tax from 3 to 4 percent, but they did so with the condition that that additional 1 percent would be used exclusively for beach cleaning and island beautification. Therefore, of the 4 percent received by the town in tax revenues, 25 percent of those funds come right off the top and are used to fund our local beach-cleaning program. It has been effective. It is an indication of the concern of the town of South Padre Island in trying to maintain the best possible beaches for the traveling public.

Mr. WYATT. Have you gotten your quarterly report from the comptroller yet for the period in question?

Mr. THOMPSON. The revenues for the period July through September 30, the third calendar quarter revenues came in and were payable on November 1. We find in comparing it with previous quarters and the increases we have been enjoying in growth and volume and even considering the inflationary factor which is automatic in this computation, we do feel that we realized a net loss of 25 percent in our revenues.

Mr. WYATT. It was a net loss of 25 percent?

Mr. THOMPSON. Yes, and it seems to continue at this point.

Mr. WYATT. Some will say part of the reason for that is because of the gasoline crisis. Did you note a reduction in the second quarter which would be the period ending on July 30?

Mr. THOMPSON. June 30.

Mr. LILLJEDAHL. I could respond. That particular quarter was up over 1978, 35.4 percent.

Mr. WYATT. In the second quarter over the previous quarter?

Mr. LILLJEDAHL. Same quarter previous year?

Mr. WYATT. Was it up in the third quarter over the third quarter of 1978?

Mr. LILLJEDAHL. No, sir, it wasn't. We had a negative again. To quote you an exact figure, the 1978 third quarter was $149,000. The 1979 third quarter was $142,634 if you adjust that for rate increases and so forth. We lost whatever growth potential we had and, in fact, some real dollars.

Mr. WYATT. Thank you, Mr. Lilljedahl.

Mr. THOMPSON. We consider a 10-percent inflation factor. We considered that was a 25-percent net gain.

Mr. WYATT. My point is when the gasoline crisis was very high, you had a net increase of 35 percent; whereas in the third quarter, it was zero?

Mr. LILLJEDAHL. Yes.

Mr. THOMPSON. We did not have any adverse effect from the fuel problem. We had no shortage in the immediate area. We advised people. We set up a gasoline hotline arrangement with other chambers of commerce. We feel that many people in Texas who might have gone longer or greater distances for their summer vacation perhaps came to South Padre Island and the fuel situation was actually a plus for us.

Mr. WYATT. Thank you.

I would like to join with Congressman de la Garza and the folks from South Padre Island in saying that I think the Coast Guard did an outstanding job in working with NOAA and other State and Federal agencies in attempting to work out this problem. I saw nothing but cooperation. There are those who took umbrage to certain actions. We all heard about that. Overall, this situation was well handled by the Coast Guard, and I would say that certainly there are constituents in my area who would disagree with just cleaning up the beaches and not attempting to do more offshore or at the well site. This needs to be said. I think the Coast Guard would agree with that. Overall, I have nothing but praise for what they have done. Many of the people along the Texas gulf coast certainly share that opinion.

Mr. BIAGGI. You must be saying the right thing because I see the Coast Guard smiling.

Mr. LILLJEDAHL. We should also add that the Small Business Administration did a fine job for us after the fact in setting up offices in South Padre Island in processing people very rapidly in spite of the fact that they had two other disasters going on in the State of Texas.

Mr. BIAGGI. Is Mr. Heinze here?

Mr. THOMPSON. No. He didn't come with us.

Mr. BIAGGI. Mr. Donnelly?

Mr. DONNELLY. No questions.

Mr. BIAGGI. Mr. Oberstar?

Mr. OBERSTAR. No questions.

Mr. BIAGGI. I have one observation. The gentleman from Texas pointed out a significant element in this, the effect of the media. We are talking about an oil spill that has caused damage, and then you tell us how great the Coast Guard was in cleaning up the beach and you blame the diminution in business and the substantial loss of moneys on the media's impact. Our experience is when this occurs, spills like this occur, it does not take too long before there is a normal resumption of commerce.

You have apparently taken the offensive by advertising within the parameters of your own limitations that you are back in business and South Padre Island is a nice place to come to.

Do you believe there is justification for this type of legislation?

Mr. THOMPSON. Yes, Mr. Chairman, I do because the adverse publicity surrounding an event of this nature has economic impact and can cause as much loss as the actual incident itself. Some of the media have been quite good about following up. One national network sent a crew down to do a followup report that was very positive and we extended our appreciation for that because it is not often that media has time to report good news.

National public broadcasting did show our recovery, at least our present recovery and I hope our permanent recovery. The media has been good. We have got a number of calls from media representatives throughout the country. NBC in New York called just last Thursday, so they are still interested in us and, in spite of all the other priority news I am happy to report that they are willing to tell our story. I hope we can restore confidence again.

Mr. BIAGGI. I want to thank the panel very much for their contribution.

Excuse me, Mr. Breaux.

Mr. BREAUX. Mr. Chairman, some may be quick to argue that it doesn't follow if we hear testimony that the local people are saying things aren't bad and advertising to come down to South Padre Island and south Texas, that there somehow must not have been a great deal of damage if you tell us things are not really bad. The real key is that the actual damage was not that bad, but the perception of it was great. That caused the tourist industry to suffer serious damage from the economic viewpoint. While damage was not bad, the perception was, nationwide, that it was and you have suffered great damages?

Mr. THOMPSON. Correct. The oil might return and the environmental impact is still to be determined.

Mr. BREAUX. Thank you.

Mr. BIAGGI. Thank you.

These hearings and legislation were prompted by two Representatives from Texas, Mr. Wyatt and Mr. de la Garza. They pursued the Chair very vigorously and consistently in connection with addressing themselves to the problems on the Texas gulf coast. Sometimes we are too remote from the locale to fully understand the intensity of the concern, and I want to say that but for their representation, we would have no legislation to talk about today, and the Chair is grateful to the two gentlemen from Texas and to the panel.

Thank you very much.

Mr. BIAGGI. We have a number of other witnesses and more for psychological reasons than any other, we will ask them to come up as a panel. If we are looking at them, it encourages us mentally to continue and not be discouraged by the fact that we have four other witnesses who are to testify and it is getting so that our seat can no longer endure without some extended interruption.

It is our intention to continue the hearing as one continuous hearing.

The next witness will be Rear Adm. Wayne E. Caldwell, Chief, Office of Marine Environment and Systems, U.S. Coast Guard, accompanied by Comdr. Joseph L. Valenti of the Marine Environmental Protection Division; and Mr. James P. Walsh, Deputy Administrator, National Oceanic and Atmospheric Administration, accompanied by Marty Belski, Deputy General Counsel, NOAA, and Capt. Larry Swanson, Director, Office of Marine Pollution Assessment, NOAA; and Ms. Mary Elizabeth Hoinkes, Assistant Legal Advisor for Oceans, Environment and Scientific Affairs, Department of State, accompanied by Tucker Scully, Deputy Director of the Office of Oceans and Polar Affairs, Department of State.

At this time, I request unanimous consent to place into the record of this hearing: A letter from Dr. C. R. Arnold, research scientist, dated November 30, 1979. Dr. Arnold is with the Port Aransis Marine Laboratory, University of Texas; and two memorandums from the American Law Division, Library of Congress, outlining the applicability of international and foreign law on the issue of liability and compensation for damage arising out of the Ixtoc I incident.

Without objection, so ordered.

[The following was received for the record:]

OIL SPILL LIABILITY

Mexico

The purpose of this report is to determine whether, under the laws of Mexico, the damage to American property caused by a recent oil spill in the Campeche Bay is recoverable in a court of law.

Mexico, like the United States, is a federation composed of 31 states and a federal district; thus, the country is governed by the laws of each state in addition to the laws that are applicable to the federation.

Although the oil spill refered to in this inquiry occurred in the Campeche Bay, off the state of that name, the laws of the state of Campeche do not seem to be applicable to this case. A number of provisions found not only in the federal Constitution but also in federal statutes bring this matter into the federal jurisdiction. The following laws are basically applicable to this inquiry:

1) Article 27, paragraphs 4 and 6 of the federal Constitution of Mexico of 1917;[1]

2) Law Regulating Article 27 of the Constitution in Regard to Petroleum, of November 27, 1958;[2]

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[1] As amended by Decree of Jan. 6, 1960, Diario Oficial [D.O.], Jan. 20, 1960.

[2] D.O., Nov. 29, 1958.

3) Regulations to the Law Regulating Article 27 of the Constitution in Regard to Petroleum, of August 24, 1960;[3]

4) Regulations on Petroleum Works of February 21, 1973;[4]

5) The Organic Law of Petróleos Mexicanos of January 23, 1971;[5]

6) Regulations to the Organic Law of Petróleos Mexicanos of July 25, 1972;[6]

7) Decree Creating a Decentralized Autonomous Entity of Public Interest, [known as] the Mexican Petroleum Institute, of August 23, 1965;[7]

8) Pertinent provisions of the federal Civil Code concerning civil liability; and

9) Pertinent provisions of the Federal Labor Law on payment of indemnity.[8]

An examination of these statutes follows.

A. Jurisdiction of Federal Courts and National Interest

Under article 27, paragraphs 4 and 6 of the Constitution of Mexico of 1917, it is clearly provided that direct ownership of all natural resources of the continental shelf and the submarine shelf as well as petroleum and all solid, liquid, and gaseous hydrocarbons is vested in the Nation, such ownership being inalienable and imprescriptible. The exploitation of these particular resources is to be permitted only by concessions issued by the federal executive in accordance with what is provided in the law.

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[3] D.O., Aug. 25, 1960.

[4] D.O., Feb. 27, 1974.

[5] D.O., Feb. 6, 1971.

[6] D.O., Aug. 10, 1972.

[7] D.O., Aug. 26, 1965.

[8] D.O., Apr. 1, 1970.

Implementing the above mentioned constitutional provision, the country enacted its Law of November 27, 1958, Regulating Article 27 of the Constitution in Regard to Petroleum. The fundamental principle is restated that the direct, inalienable, and imprescriptible ownership of all hydrocarbons found in the national territory including the continental shelf is vested in the Nation. This statute also emphasizes that it is vested in the Nation to exploit all the different phases of the petroleum industry, including specifically exploration, exploitation, refining, transportation, storage, distribution, and original sales of petroleum and gas and their byproducts. Article 9 of this law places the petroleum industry under the exclusive federal jurisdiction and subjects it to the corresponding federal technical and regulatory provisions governing it. Under article 9, the federal executive is empowered to regulate the supervision of the petroleum industry and the technical regulations governing the industry's exploitation. Also, the pertinent provisions of the Commercial Code (in commercial matters) and of the Civil Code (in civil matters) are declared to be supplementally applicable to this industry.

B. Government Agencies Dealing with the Petroleum Industry

Article 1 of the Regulations to the Law Regulating Article 7 of the Constitution in Regard to Petroleum of August 24, 1960, specifically provides that the Ministry of National Patrimony is especially vested with the right to enforce the provisions of article 27 of the federal Constitution concerning petroleum. Under article 3, the regulations provide that Petróleos Mexicanos--another Government agency whose role in the petroleum industry will be examined below--has the duties of conducting oil exploration and exploitation in the lands that have been entrusted to it. Under article 46 of the regulations, the Ministry of National Patrimony is further charged with conducting yearly regular inspections and those special inspections that may be required in its supervision of petroleum works. A written record of these inspections must be kept, and when necessary, the inspector must state whether certain repair work is necessary or if it is adviseable to change the kind of work that is being done in specific works. In view of these reports, the Ministry must give the corresponding orders within 30 days of receiving such reports.

To conduct the works of exploration, exploitation, refining, transportation, storage, distribution, and first-hand sale of petroleum, natural gas and their byproducts, among others, the Government enacted its Decree of January 23, 1971, creating the agency known as Petróleos Mexicanos (PEMEX), which is a decentralized entity of the federal government having technical, industrial, and commercial character. It has its own juristic personality and its own patrimony and is domiciled in Mexico City. Its patrimony consists of the properties and rights it has acquired or that have been assigned or adjudicated to it, including the reserves for exploitation and declination of the oil fields as well as those that may be assigned, adjudicated, or acquired by it under any legal title, subventions, subsidies, and gifts that may be granted to it.

The head of PEMEX is its general director, who also legally represents it and acts as its agent and is empowered to issue internal regulations concerning its organization, administration, and functions. PEMEX must prepare each year an annual budget of revenues and expenditures, including a statement of justifications with regard to expenditures.

An agency of technical, educational, and cultural nature also related to the petroleum industry is the Mexican Petroleum Institute, created by Decree of August 23, 1965. It also is a decentralized entity having its own juristic personality and patrimony, created to develop the research and technology required by the petroleum industry, particularly with regard to the execution of projects of new industrial installations, and to render technical assistance to the users of processes, equipment, or products that are the result of its technology.

C. Accidents and Liabilities

As stated above, the Nation is vested with the ownership of the petroleum wealth found in the country and, as such, it is entrusted with carrying out the different phases of its exploitation. The government agencies mentioned above are primarily charged with these obligations. The Regulations on Petroleum Works of February 21, 1973, provide that works of light or deep drilling of oil wells for exploration or exploitation require a permit issued by the Ministry of National Patrimony. In addition, these regulations state that to protect the interests of the Nation in matters concerning petroleum exploitation, PEMEX has the oblgation to report immediately any accident that may occur in its installations by the fastest means of communications available. Similar notice shall be given to the Ministry of Public Health and Social Assistance in those cases where the ecology of the region may be affected. Furthermore, in those cases where work in the continental shelf is to be undertaken, in addition to the license or permit that must be secured previously by the agencies involved, the opinion of the Ministry of Foreign Affairs is required in those cases where interest or rights of international nature are involved. These regulations provide that in drilling wells, the equipment necessary to guarantee the safety of the job must be installed and the necessary precautions must be taken while the work is done in order to avoid the contamination of the environment as well as hazards and accidents.

The regulations further provide that in case of accidents or in any phase of the industry PEMEX is under the obligation to immediately execute the works necessary to achieve control of the installation or installations where the accident occurred, in accordance with the needs of the moment. Of particular interest to this inquiry is the provision of article 29 of the regulation of February 21, 1973, concerning the immediate reporting of accidents to PEMEX so that a special inspection service is ordered by the corresponding office to determine the amount of the loss and the liability of the agency. Also pertinent are those provisions contained in article 30 of the same regulation fixing the liability for accidents caused by lack of compliance with the provisions of any regulations in the agency holder of an operational license or permit. Article 31 provides that liability in case of accidents includes not only that incurred by the violation of the regulation, but also extends to damages caused to the person or property of third parties, as well as damages caused by the waste (or spill) of hydrocarbons. Pertinent provisions of the federal Civil Code, supplementally applicable to this case, provide that any person making use of a mechanism, instrument, apparatus, or substance which is dangerous in itself is liable for the damages he causes, unless he proves that such damage was produced by the fault or inexcusable negligence of the victim.

The code further provides that reparation shall consist, at the election of the injured party, of the restoration of the status previously existing, or if this is impossible, of the payment of damages. Payment of damages to workers should be made in accordance with what is provided in the Federal Labor Law in disability cases or in case of the death of the worker. When the damage was caused jointly by two or several persons (i.e. agencies), they are jointly liable for damages.

D. Competent Court to Hear the Case

Article 105 of the Constitution provides that in those cases where the Federation is a party, the Supreme Court of Justice of the Nation has the exclusive jurisdiction to hear the controversy. This general constitutional provision is further developed under article 11, section V of the Organic Law of the Judicial Power of the Federation, as amended,[9] which provides that in those controversies where the Federation is a party the Supreme Court of Justice shall hear the case, provided that it is an important one dealing with transcendent matters of national interest and after hearing the opinion of the Attorney General of the Republic. In addition, article 18 of the Federal Code of Civil Procedures[10] provides that matters of the competence of the Supreme

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[9] Diario Oficial, Jan. 10, 1936.

[10] Códigos de Procedimientos Civiles para el D. F. y T. y Federal de Procedimientos Civiles [Ed. Cajica. Puebla, Mexico] at 500-649.

Court of Justice shall be heard by that court in sole instance, with the exception of those concerning matters on amparo (a special remedy for the protection of certain fundamental rights). Under the provisions of article 1 of this code, only those parties having an interest in the matter have standing to appear in court. Their appearances may be made by the interested parties in person or by their legal representatives or proxies. No discrimination on appearing in court is found in the law regarding nationals and foreigners; a foreign country or a state of a foreign country does not appear to be excluded by the law from suing in court.

E. Mexico and the International Law

Although Mexico is a party to the International Convention for the Prevention of Pollution of the Sea by Oil done at London, May 12, 1954 (12 UST 2989; TIAS 4900; 327 UNTS 3), the provisions of that convention do not appear to be aplicable to thise case since they deal only with the pollution of the sea by oil discharged from ships. Consequently the legal issues raised in this inquiry, in the absence of any other binding international treaty or agreement, appear to be governed by Mexican municipal law.

F. Conclusions

This report may be summarized as follows:

1) Direct ownership of all natural resources of the continental

shelf and the submarine shelf as well as petroleum and all solid, liquid, and gaseous hydrocarbons located in Mexico is vested in the Nation.

2) The Ministry of National Patrimony, the Ministry of Public Health and Social Assistance, the Ministry of Foreign Affairs in certain instances, Petróleos Mexicanos (PEMEX), and the Mexican Petroleum Institute are the main government agencies dealing with the petroleum industry.

3) The laws of Mexico acknowledge liability for damages caused by accidents in petroleum works.

4) Since only the holder of a right has a standing in Mexican courts, this seems to imply that if an action is filed in court, it must be filed by the interested parties--that is, the parties who have suffered damages and losses, such as the United States, the States, and private individuals and corporations, each with regard to its, his or her respective losses.

5) The Mexican court, in finding for plaintiffs, will freely determine the amount of the indemnity to be paid.

In concluding, we must state that the international repercussions caused by the oil spill in the Campeche Bay are, within the laws of Mexico, a matter of unique nature, and thus no precedent or cases in point have been located that may give a clue as to the manner in which the Mexican courts may deal with this case.

Prepared by Armando E. Gonzalez	Law Library
Assistant to the Chief	Library of Congress
Hispanic Law Division	December 1979

TRANSLATION FROM THE SPANISH

1) Constitution of Mexico of 1917
(as amended by Decree of Jan. 6, 1960, Diario Oficial, Jan. 20, 1960)

Art. 27 [para. 4] In the Nation is vested the direct ownership of all natural resources of the continental shelf and the submarine shelf of the islands; of all minerals or substances which in veins, ledges, masses, or ore pockets form deposits of a nature distinct from the components of the earth itself, such as the minerals from which industrial metals and metalloids are extracted; deposits of precious stones, rock salt and the deposits of salt formed by sea water; products derived from the decomposition of rocks, when subterranean works are required for their extraction; mineral or organic deposits of materials susceptible of utilization as fertilizers; solid mineral fuels; petroleum and all solid, liquid, and gaseous hydrocarbons; and the space above the national territory to the extent and within the terms fixed by international law.

. . .

[para. 6] In those cases to which the two preceding paragraphs refer [that is, paras. 5 and 4 of this art. 27], ownership by the Nation is inalienable and imprescriptible, and the exploitation, use, or appropriation of the resources concerned, by private persons or by companies organized according to Mexican lawd, may not be undertaken except through concessions granted by the Federal Executive, in accordance with rules and conditions established by law.

2) Law Regulating Article 27 of the Constitution in Regard to Petroleum of November 27, 1958 (Diario Oficial Nov. 29, 1958)

Art. 1. The Nation is vested with the direct, inalienable, and imprescriptible ownership of all hydrocarbons found in the national territory, including the continental shelf, in strata and deposits, regardless of their physical state, including intermediary states, and which is component of crude mineral oil, accompanies it, or is derived from it.

Art. 2. Only the nation may carry out the different phases of exploitation of hydrocarbons that constitute the petroleum industry, as provided under the following article.

Within the meaning of the law, the term "petroleum" is used to include all natural hydrocarbons referred to in article 1 [of this law].

Art. 3. The petroleum industry comprises:

1. The exploration, exploitation, refining, transportation, storage, distribution, and original sales of petroleum gas and their byproducts.

. . .

Art. 9. The petroleum industry is under the exclusive Federal jurisdiction. Consequently, only the Federal Government may issue technical or regulatory provisions governing it and establish the taxes with regard to any aspect of this industry.

. . .

Art. 11. The Federal Executive shall issue the regulations concerning the supervision of the petroleum industry and the technical regualtions governing the exploitation [of this industry].

Art. 12. In those matters not regulated by this law, the acts executed by the petroleum industry shall be considered as mercantile acts and therefore be governed by the provisions of the Commercial Code, and supplementally by the provisions of the Civil Code for the Federal District and Federal Territories.

* * *

3) Regulations to the Law Regulating Article 27 of the Constitution in Regard to Petroleum of August 24, 1960 (Diario Oficial, Aug. 25, 1960)

Art. 1. The following pertain to the Secretariat of the National Patrimony:

I. The enforcement of the Law Regulating Constitutional Article 27 in regard to Petroleum, these Regulations, and all other regulations of the same Law.

. . .

Art. 3. The Nation, through Petróleos Mexicanos, shall carry out the activities mentioned in article 3 of the law, consisting of:

I. The exploration, exploitation, refining, transportation, storage, distribution, and original sales of petroleum and gas and their byproducts.

. . .

Art. 5. Oil exploratin and exploitation shall be carried out by Petróleos Mexicanos by means of the allocation of lands which the Secretariat has made or will make to it, at its request or by decision of the Federal Executive.

. . .

Art. 46. The Secretariat shall exercise supervision over petroleum works, as follows:

I. By regular yearly inspections,

II. By special inspections ordered whenever deemed advisable or at the request of Petróleos Mexicanos.

. . .

Art. 48. A written record shall be drawnup of all visits of inspection, a copy being given to Petroleos Mexicanos. Said record shall be signed by the inspector and by the representative of Petróleos Mexicanos or whoever deals with the inspector, and if any of the latter should refuse to sign, this refusal shall be annotated.

The inspector shall forward the original record and their report to the Secretariat.

Art. 49. If the inspection indicates the need of changes or repairs to the works or installations, or points out how the work should be done, the inspector shall make the required suggestions. The Secretariat, based on the record and the inspector's report, shall give the required orders within 30 days following the date it received such record and report.

4) Regulations on Petroleum Works of February 21, 1973 (Diario Oficial, Feb. 27, 1974)

Art. 1. Works concerning light or deep drilling of oil wells, for purposes of either exploration or exploitation, as well as their depths, major reparatins, and plugging...require for their execution and function a permit to be issued by the Secretariat of National Patrimony... .

. . .

Art. 29. For the purposes of protecting the interests of the Nation in matters concerning the exploitation of petroleum, the agency (i.e., Petróleos Mexicanos) has the obligation to immediately report to the administrative office (Dirección), by the fastest means of communication, any accident that may occur in its installation or [the existence] of hydrocarbon wastes in general, should they appear, in order that a special inspection service be ordered by the corresponding office to determine the amount of the loss and liability of the agency. Similar notice shall be given to the Secretariat of Public Health and [Social] Assistance, in those cases where in any manner the ecology is affected or the environment is poluted, in order that [the agency] acts within its own attributions.

Art. 30. For the purposes of the preceding article, the agency holder of the [operation] license shall be considered liable for the accidents caused by lack of compliance with [the provisions] of any required regulation, or for the fact that the indications made by the inspectors for the safety of the works were not followed or for the avoidance of contamination of the environment or for the protection of the interests of third parties.

Art. 31. Liability in case of accidents indcludes not only that incurred by the violation, as the case may be, of the provisions of these regulations and [those caused] by damages caused to the person or property of third parties, but also those caused by hydrocarbons wastes, when said wastes were caused by the holder of the [operation] license or by the respective contractor. In these cases, the wastes of petroleum shall be penalized pursuant to what is provided in these regulations.

Art. 32. In case of accidents or in any phase of the industry, Petróleos Mexicanos is under the obligation to immediately execute the works necessary to achieve the control of the installation or installations subject to the accident, in accordance with the needs of the moment. Once this object is achieved, these works shall fulfill the requirements of the present regulation.

. . .

Art. 51. Pursuant to the provisions of article 7 of the Law Regulating Article 27 of the Constitution in regard to Petroleum, any work of superficial exploration to find out whether there is a possibility to find petroleum, either in the continent, the continental shelf, or the submarine platforms (zócalos) of the islands, shall require a permit from the Secretariat which may be granted even if the area subject to the exploration has been abandoned.

The permits for the execution of exploration works in superficial currents, in lakes, in the continental shelf, or in the submarine platforms of the islands, shall be issued after an opinion from the Secretariats of Hydraulic Resources, Maritime, Industry and Commerce, and Public Health and [Social] Assistance and any other Dependencies that shall issue security measures for the protection of human lives and the preservation of the flora and fauna. The opinion of the Secretariat of Foreign Affairs shall also be required in those cases where interests or rights of an international nature are involved.

. . .

Art. 94. In the job of drilling a well, the equipment necessary to guarantee the safety of the job must be installed. Also, the necessary precautions must be taken to avoid the contamination of the environment as well as accidents and risks while the work is done.

* * *

5) Organic Law of Petróleos Mexicanos of January 23, 1971 (Diario Oficial, Feb. 6, 1971)

Art. 1. Petróleos Mexicanos [a Government agency], created by the Decree of June 7, 1938, is a public, decentralized entity of the

Federal Government, having technical, industrial and commercial character, as well as its own juristic personality and patrimony, and domiciled in the City of Mexico, Federal District.

Art. 2. The object of Petróleos Mexicanos is the exploration, exploitation, refining, transportation, storage, distribution, and first-hand sale of petroleum, natural gas, and their byproducts... .

Art. 3. The patrimony of Petróleos Mexicanos is constituted by the properties and rights it has acquired or that have been assigned or adjudicated to it. It includes the reserves for the exploration and declnation of the fields as well as those that may be assigned, adjudicated, or acquired by it under any legal title, the subventions, subsidies, and gifts that may be granted to it, and the operational yields it may obtain.

* * *

6) Regulations to the Organic Law of Petróleos Mexicanos of July 25, 1972 (Diario Oficial, Aug. 10, 1972)

. . .

Art. 12. The Federal Executive, as provided under article 6 of the Organic Law [of Petróleos Mexicanos], shall appoint a General Director.

Art. 13. The following constitute the powers and obligations of the General Director:

I. To represent Petróleos Mexicanos;

II. To exercise the poers of general agent, as provided under the provisions of article 2554 of the Civil Code for the District and Federal Territories... .

III. To set the regulations for the organization, administration, and functions of the agency and to prepare the programs to manage and exploit its property.

. . .

Art. 21. The annual budget of revenues and expenditures of the agency shall contain a statement of justification with regard to expenditures, the assignment of funds for the several kinds of current expenses and investments... .

* * *

7) Decree Creating a Decentralized Autonomous Entity of Public Interest [Known] as Instituto Mexicano de Petróleo (Mexican Petroleum Institute) of August 23, 1965 (Diario Oficial, Aug. 26, 1965)

Art. 1. The Mexican Petroleum Institute, a decentralized entity of public interest and mainly of a technical, educational, and cultural character, is hereby created. It shall have its own juristic personality and patrimony.

Art. 2. The purpose of this agency is to develop the research and technology required by the petroleum industry...by means of:

. . .

c) the development of new technology and processes;

. . .

e) the execution of projects of new industrial installations;

f) the rendering of technical services;

. . .

h) the rendering of technical assistance to the users of processes, equipment, or products that are the result of its technology;

. . .

j) the dissemination of scientific developments and their application to the petroleum technology;

. . .

o) any other means leading to the aforementioned object.

* * *

8) Civil Code of the Federal District and Territories

. . .

Art. 1913. In the case that a person making use of a mechanism, instrument, apparatus, or substance which is dangerous in itself, by reason of the velocity which it develops, its explosive or flammable nature, the strength of the electric current it conducts, or for other analogous causes, he is liable for the damage he causes, even though he does not act illegally, unless he proves that such damage was produced by the fault or inexcusable negligence of the victim.

. . .

Art. 1915. Reparation shall consist, at the election of the injured party, of the restoration of the status previously existing, and if this is impossible, of the payment of damages.

When the damage is caused to persons and results in death or total, partial, or temporary disability, the amount of indemnity shall be fixed by applying the provisions of the Federal Labor Law. In order to determine the amount of indemnity, there shall be taken as a base the quadruple of the highest minimum salary in force in the region and it shall be extended to the number of days of each disability as provided by the Federal Labor Law. In the case of death, the indemnity shall be paid to the heirs of the victim.

Credits for indemnity when the victim is a wage earner are not transferable, and shall be paid preferentially in the form of a lump sum, except agreement by the parties to the contrary.

. . .

Art. 1917. Persons who have jointly caused a damage are jointly liable to the victim for the reparation which they are obliged to make in accordance with the provisions of this chapter [of the code].

Art. 1918. Juristic persons are liable for the damages their legal representatives may cause in the exercise of their functions.

. . .

Art. 1934. The action to claim damages as provided in this chapter [of the code] prescribes after 2 years, counted as of the date the damages were caused.

* * *

9) Federal Labor Law (Diario Oficial, Apr. 1, 1970)

[Translator's note: Articles 472 through 522 of the Federal Labor Law contain provisions concerning payment of indemnities to workers for disability or death. It includes tables with regard to the degree of disability and percentages to be paid, as well as the indemnity to be paid in cases of death.]

Translated by Armando E. Gonzalez
Assistant to the Chief
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December 1979

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Congressional Research Service

WASHINGTON, D.C. 20540

December 5, 1979

TO : House Merchant Marine and Fisheries Committee
Coast Guard and Navigation Subcommittee
Attn: Larry Mallon

FROM : American Law Division

SUBJECT: Whether the Foreign Sovereign Immunities Act of 1976 Authorizes Suits Against the Mexican State-Owned Oil Company (PEMEX) in United States Courts

This is in response to your request for an analysis as to whether Petroleos Mexicanos, the Mexican state-owned oil company (PEMEX), may be sued by the United States government and United States nationals under jurisdiction conferred by the Foreign Sovereign Immunities Act of 1976, 28 U.S.C. §§ 1330, 1602 et seq. (FSIA). As the owner of the exploratory well which suffered a blow-out in the Bay of Campeche region June 3, 1979, the accident resulting in an oil spill which eventually caused severe damage to the territorial waters of the United States and the coast of Texas, the company would presumably be sued on the basis of its engaging in an inherently dangerous and ultra-hazardous activity resulting in injury in and to the United States.

The Foreign Sovereign Immunities Act was enacted, in part, to codify the so-called "restrictive" principle of sovereign immunity, as recognized in international law. Under this principle, the immunity of a foreign state from suit in a nation's courts is restricted to suits involving the foreign state's sovereign or public acts and does not extend to legal actions based on its commercial or private acts. H.R. Rep. No. 1487, 94th Cong., 2d Sess. 7 (1976). As enacted, the FSIA generally exempts foreign states from the jurisdiction of Federal and state courts, except as provided in the statute. 28 U.S.C. § 1604. As defined in the Act, a "foreign state" for purposes of jurisdiction includes not only the political entity itself and its political subdivisions, but also agencies and instrumentalities of the foreign state. 28 U.S.C. § 1603(a). An "agency of instrumentality of a foreign state" is defined as follows:

> An "agency or instrumentality of a foreign state" means any entity--
> (1) which is a separate legal person, corporate or otherwise, and
> (2) which is an organ of a foreign state or political subdivision thereof, or a majority of whose shares or other ownership interest is owned by a foreign state or political subdivision thereof, and
> (3) which is neither a citizen of a State of the United States as defined in section 1332 (c) and (d) of this title, nor created under the laws of any third country. 28 U.S.C. § 1603(b).

General exceptions to the jurisdictional immunity of foreign states are set forth in 28 U.S.C. § 1605. This section provides, in pertinent part, that

> (a) A foreign state shall not be immune from the jurisdiction of courts of the United States or of the States in any case--
>
> ...
>
> (2) in which the action is based...upon an act outside the territory of the United States in connection with a commercial activity of the foreign state elsewhere and that act causes a direct effect in the United States. 28 U.S.C. § 1605(a)(2).

This provision, in effect, sets forth the requisite minimum contacts which must exist before the jurisdiction of 28 U.S.C. § 1330 may be exercised.

PEMEX, the Mexican state oil company, was formed in 1938 to take over the interests of the foreign oil companies which had been operating in Mexico prior to the 1937 nationalization. Since World War II, PEMEX has developed an administrative structure to produce and distribute petroleum within Mexico and to purchase and sell oil in world markets. Congressional Research Service, Mexico's Oil and Gas Policy: An Analysis 11 (Jt. Com. Print 1978) [hereinafter cited as Oil and Gas Policy]. PEMEX is in effect a state oil monopoly, engaging in all aspects of oil production and distribution, including oil exploration. See generally Oil and Gas Policy.

Clearly, PEMEX would fall within the scope of the definition of "agency or instrumentality of a foreign state," and would thereby be considered a "foreign state" for jurisdictional immunity purposes. Carey v. National Oil Corp., 453 F. Supp. 1097, 1100-101, n. 2 (1978). However, because the company was engaged in oil exploration at the time of the accident, it may be argued that it was carrying on a commercial activity and would therefore be liable to suit under the commercial activity exception set forth in 28 U.S.C. § 1605(a)(2).

"Commercial activity" is defined in the statute as "either a regular course of commercial conduct or a particular commercial transaction or act." 28 U.S.C. § 1603(d). The section further provides that "the commercial character of an activity shall be determined by reference to the nature of the course of conduct or particular transaction or act, rather than by reference to its purpose." *Id.* The kinds of activities contemplated by this provision are described as follows in the House report accompanying the original legislation:

> A "regular course of commercial conduct" includes the carrying on of a commercial enterprise such as a mineral extraction company, an airline or a state trading corporation. Certainly, if an activity is customarily carried on for profit, its commercial nature could be readily assumed. H.R. Rep. No. 1487, *supra*, 16.

A least two Federal courts have viewed the activities of PEMEX as commercial. In *D'Angelo* v. *Petroleos Mexicanos*, 422 F. Supp. 1280 (D. Del. 1976), a suit involving an action brought by the receiver of a dissolved Delaware corporation against PEMEX for recognition of certain claims for royalty and participating interests in expropriated Mexican oil, the court held that the Mexican government's expropriation decree was an act of state which could not be examined in United States courts. However, in coming to this conclusion, the court stated that "PEMEX is engaged in a commercial business, the operation in Mexico of an oil company for profit," although it found the expropriation itself to be a sovereign act and not an incident to the commercial activity. Id. at 1286. Earlier, in a decision handed down in a maritime action instituted against an oil tanker and PEMEX, its owner, the court held in dicta that the vessel would be liable to be seized not only for jurisdictional and security purposes but also for the satisfaction of any judgment that could be recovered against it, explaining its denial of the defendant's claim for immunity as follows:

> The vessels of Petroleos Mexicanos...are not considered as being owned by the Republic of Mexico, but by an independent corporation engaged in a private commercial activity; and I, therefore, hold that the vessels of Petroleos Mexicanos...may not only be seized to acquire jurisdiction, but will have to respond for damages;...and if damages are assessed against Petroleos Mexicanos, the vessel may be sold to satisfy the judgment. S.T. Tringali Co. v. Tug PEMEX XV, 274 F. Supp. 227, 230 (S.D. Tex. 1967).

Although the court's decision as to whether the state of Mexico in fact owns the vessel may have been legislatively overruled by virtue of the FSIA's definition of "agency or instrumentality of a foreign state," the characterization of PEMEX as a corporation engaged in a commercial activity could still be considered to be valid.

While it may appear then that a government's ownership of an exploratory oil well (an activity which is presumably carried out with the ultimate aim of producing and marketing crude oil) is a commercial activity for the purposes of 28 U.S.C. §§ 1603(d) and 1605(a)(2), such an activity must be analyzed in light of the holding of International Association of Machinists and Aerospace Workers v. Organization of the Petroleum Exporting Countries, [1979] Antitrust & Trade Reg. Rep. (BNA) No. 932, E-1 (C.D. Cal. Sept. 18, 1979) [hereinafter cited as IAM v. OPEC]. The court in this case, an antitrust action in which plaintiffs complained of the price setting activities of OPEC and its 13 member nations, considered at some length the commercial activities exception to the FSIA.

The court defined the complained-of activities as "the establishment by a sovereign state of the terms and conditions for the removal of a prime natural resource--to wit, crude oil--from its territory," placing price fixing itself within this wider context. Id., at E-6. First, however, the court stated that "commercial activity" should be defined narrowly, not only for foreign policy reasons but also on the recognition that a court must base its ruling on specific facts, rather than on a generalized view of the evidence. Id.

The court went on to state that in determining whether the activities of the OPEC members are governmental or commercial in nature, the Court "can and should examine the standards recognized in international law." Id. Then, citing numerous United Nations resolutions and declarations, the court affirmed the principle that a sovereign state has the sole power to control its natural resources. Id., at E-6, E-7. However, the court also noted that the defendants' control over their oil resources is an especially sovereign function with regard to OPEC countries since oil is their primary, perhaps sole, revenue-producing resource, and, in this context, made reference to the testimony of Dr. Morris A. Andelman, a court-appointed expert, who stated that it was indeed "difficult or impossible" to separate the OPEC governments as governments from their role as oil producers. Id., at E-7.

The court then described certain governmental actions which illustrate the Federal and State governments' role in the marketing of the wealth and natural resources within the United States, particularly the state laws enacted in the 1930's requiring proration and limiting the quantities of crude oil that could be taken from wells in various fields in Texas and other states, and the federal legislation which was subsequently enacted to enforce the state statutes, by prohibiting the shipment in interstate commerce of crude oil produced in violation of state laws and regulations. The court then concluded that

> [i]n view of our own State and Federal domestic crude oil activities, there can be little question that establishing the terms and conditions for removal of natural resources from its territory, when done by a sovereign state, individually and separately, is a governmental activity. Id., at E-7.

The court, however, qualified this holding in a footnote discussing the portion of the House report, referred to above, which mentions as a contemplated commercial enterprise, a mineral extraction company. The plaintiffs in the instant case had contended that because the OPEC member nations have a proprietary interest in the oil companies which are extracting the oil from within their respective territories, the price-fixing activities engaged in by the defendants are therefore commercial activities within the purview of the legislative intent of the FSIA. The court answered this assertion with the following observation:

> While it may be true that through their activities as partial or total owners of these companies, the defendant nations do engage in commercial activities, this does not mean, and the legislative intent does not support the conclusion, that all activities, even those remotely connected with these companies, are necessarily commercial. The fact that a nation owns and operates an airline company does not mean that all government activities regulating the use of airspace, or the ingress and egress of airplanes to and from the nation's airports, are commercial activities. Accordingly, we must look to the specific activities in which the defendants engage.
>
> Here, a clear distinction must be drawn between the activities each government engages in by virtue of its proprietary interests and the activities in which it engages by virtue of its status as a sovereign. The activities of which plaintiff complains are clearly governmental. These activities are engaged in by the defendants in their status as sovereigns and not as proprietors. This determination is conclusively established by looking to the nature of these activities and comparing them with governmental activities of other nations as we have already done. Id.

The court, then, seems to indicate that the ownership of an oil company engaged in extracting oil from within the nation's territory may form the basis for commercial activities, although the fact of ownership itself is not the determinative element. As the court notes, it is necessary to look to the specific activities which are engaged in by virtue of that ownership. In the case of PEMEX, it is necessary to ask then whether the actual process of oil exploration is indeed a commercial activity.

The court in IAM v. OPEC looked to international law to determine whether the complained of OPEC activities were sovereign or commercial. The documents relied upon set forth a general principle that control over a nations natural resources is a sovereign function, but do not indicate whether ownership and operation of exploratory oil wells is, in this context, an inherently sovereign activity. The court, in addition, viewed as significant the fact that oil resources are a major, if not singular, source of revenue for the OPEC nations. The situation differs somewhat for Mexico where oil revenues, although a major factor in the economy, are not the sole factor. In 1978, petroleum exports were projected to account for approximately 30 percent of total exports, and the major sectors of the economy continued to be commerce, manufacturing, and services. Oil and Gas Policy 41. Indeed, it would be possible to distinguish Mexico's role as a sovereign from its role as an oil producer.

It can also be asserted that under existing international law, Mexico would have "exclusive sovereign rights as to the manner and mode of exploration and exploitation" of the oil within her territorial limits. Congressional Research Service, Overview of the Liability Under International Law for Damage to the United States Caused by an Oil Spill Emanating from a Mexican Oil Well Blow-Out 2 (1979). If a court views the operation of an oil exploratory well as a "mode of exploration" in this context, it may very well find that the drilling operations in the Bay of Campeche were a sovereign act. It may be necessary to argue then that the activity differs in substance from the type of price setting and marketing control schemes which the court in IAM v. OPEC held to be essentially sovereign functions, or generally, that the policy-making decisions regarding where and when to drill for oil, and how much oil to produce, differ from the actual commercial activities of leasing an oil rig, hiring an operator, and technically directing the exploratory operations.

It may be also argued that because the government of Mexico is the sole entity engaged in oil production and distribution in Mexico, then all of the activities of PEMEX are sovereign. As noted above, at least two courts have viewed PEMEX to be a commercial enterprise. In addition, at least one foreign court relying on an international law rule of limited immunity for States, has held that an nationalized oil company, although wholly owned and controlled by the state and serving the basic socio-economic interests of the state, would not be entitled to immunity with regard to a commercial agreement. N.V. Cabolent v. National Iranian Oil Co., Nederlandse Jurisprudentie, 1969, No. 484, p. 1329 (Hague C. of Appeal, 1968) (transl. 9 Int'l Leg Mat. 152, 1970).

Further, courts have under the FSIA ruled on the immunity of government instrumentalities where the government, in effect, maintained a monopoly. This situation often arises with respect to the instrumentalities of Communist governments. In Yessenin-Volpin v. Novosti Press Agency, 443 F. Supp. 849, 856 (S.D.N.Y. 1978), the court recognized that Novosti, an information agency of Soviet public organizations, did engage in commercial activities (for example, the sale of articles to foreign media), but distinguished this type of conduct from such activities as collaborating with other government agencies in the actual publication of articles in Soviet journals.

If one is successful then in showing that all of the company's activities are not sovereign, it would still be necessary to show that the activities complained of may be characterized as commercial, even though they are engaged in by the national monopoly. Yessenin-Volpin, supra, at 855. At least two courts has viewed an American enterprise, analogous to PEMEX and capable of carrying on similar functions, as liable to suits for damages. In Grant v. Tennessee Valley Authority, 49 F. Supp. 564, 566 (E.D. Tenn. 1942), an action for damages stemming from crop injuries resulting from flood waters under the jurisdiction of the TVA, the court distinguished between the TVA's liability for damages arising from its government function regarding flood control and its commercial functions involving the production and sale of electricity:

> By a long line of cases it has definitely been settled that neither the government nor its instrumentalities would have to respond in damages arising in the development and maintenance of waters for purposes of navigation and flood control, including claims for negligence. It may be noted that this position is not because of governmental immunity from suit but on the grounds of public policy.

> ...
>
> But the functions of the defendant in the commercial field are entirely different. Upon principle and authority, it is quite clear that the government should respond in damages for wrongs committed when it is engaged in the same activities as its citizens. It is my judgment that Congress intended that the defendant can be sued for all wrongs committed for conduct pertaining to its generating, use and sale of electric energy made from the power created by its dams. Accord, Brewer v. Sheco Construction Co., 327 F. Supp. 1017 (W.D. Ky. 1971) (action for damages resulting from TVA blasting and excavating activities in construction of new power substation).

If it can be determined that the oil which is the subject of exploration and production by Mexico is eventually marketed, rather than simply diverted to domestic use (as the export statistics referred to above might indicate), then an American court may find that the activities engaged in by PEMEX in the instant situation were indeed commercial. The court may also look to whether the activity is one which could be performed by a private person. This consideration, alluded to in Grant, has long been suggested in international law as a basis for according or denying immunity. V.G. Setser, The Immunities of the State and Government Economic Activities, 24 Law & Contemp. Probs. 290, 309-10 (1959). Whether this factor alone would convince a court that an activity is commercial is uncertain, but, when viewed in the context of the legislative intent of the FSIA, this factor may lead a court to find it equitable to subject the activities of PEMEX to the same rights and liabilities as would be accorded a private oil exploration company.

Finally, the implications of the legislative history of the FSIA itself may be useful in determining whether the activities in question are commercial ones. As noted above, the court in IAM v. OPEC was dealing with an entity which carried out a proprietary function, i.e., owning oil production companies. This ownership included some sovereign activities, and it was on the basis of these activities that the legal action was brought. While the plaintiffs argued that the complained of activities were commercial in nature, the court found OPEC's actions to be sovereign and dismissed the plaintiffs argument. In the instant case, however, the proprietary activity, i.e., the ownership of the exploratory oil well, may very well engender similar incidents of sovereignty, but it would be on the basis of the actual oil exploration process that the legal action is to be maintained. It may be argued that the legislative intent behind the FSIA, as reflected in the portion of the House report indicating that a commercial activity would include an enterprise such as a mineral extracting company, would contemplate the actual activity of mineral extraction, as distinguished from, for example, the national marketing and price control policies surrounding the distribution of the extracted mineral.

Therefore, assuming a case could be made that a national monopoly could engender sovereign as well as commercial activities, and that oil exploration itself, when engaged in by the monopoly, is a commercial activity, the FSIA would appear to allow a suit against PEMEX. Because international law standards regarding sovereign vis à vis commercial activities are somewhat unclear, it is difficult to state with certainty whether the activities in which PEMEX was engaging at the time of the well blow-out were indeed commercial. However, it is possible to argue for the separation of PEMEX's policy-making function from its technical exploration and production functions, and on this basis find it amenable to a tort resulting from suit for commercial activities under the FSIA.

We hope that this material will be helpful to you. If you need any additional assistance, please do not hesitate to contact us further.

Jeanne Jagelski
Jeanne Jagelski
Legislative Attorney

Mr. **Biaggi.** We are keeping the record open until January 7, 1980, for the receipt of any additional and relevant record material.

[The following was received for the record:]

Questions of Mr. Biaggi and Answers Supplied by the Coast Guard

Question 1: As administrator of the Federal Water Pollution Control Act's section 311(k) fund, does the Coast Guard approve for payment from the Fund claims by Federal or State agencies for either the restoration or replacement of natural resources damaged by oil spills, or for neutral damage assessments to be performed following such a spill?

Answer: In general, the expenses that are chargeable to the Federal Water Pollution Control Act, (FWPCA), Section 311(k) fund are related to control, containment, cleanup, removal, recovery or disposal of the pollutant. Restoration activities are the responsibility of the affected individual, persons liable for the damage, and appropriate government agencies.

Difficulty has been encountered in determining: (1) the Coast Guard's obligation to perform certain response activities and; (2) the extent to which these activities represent necessary removal activities as opposed to restoration activities not chargeable to the Fund.

The FWPCA definition of removal includes "the taking of such actions as may be necessary to minimize or mitigate damage to the public health or welfare, including but not limited to fish, shellfish, wildlife, and public and private property, shorelines, and beaches".

As an example, the cleaning of boat hulls and the cleaning of pilings are also considered removal operations. These are activities which minimize and mitigate damage to public and private property resulting from the discharge, and are activities which prevent further leaching or emitting of pollution into the water. It is possible to remove oil from the hulls of boats without re-creating a discharge in the surrounding water. Repainting boat hulls is not required if, after cleaning, they are found to be stained or corroded from the contact with the pollutant. Here again, repair of damage caused by the pollution is a restoration and not a removal operation.

If the damage is caused during removal, any actions to correct the damage should be financed from the Fund. This policy allows the On-Scene Coordinator (OSC) to take aggressive and forthright actions necessary, in his judgment, to remove the discharge from the water or adjoining shoreline and, at the same time, allows him the flexibility of determining whether an unusual response measure is required in the case at hand. The virtually infinite variety of circumstances that are encountered requires that the final judgment of the appropriateness of any removal action rests with the OSC, and precludes categorically mandatory policies, either affirmative or negative. If the OSC determines that a certain action is necessary to effect proper removal, the expenses for that action are properly charged against the Pollution Fund. The effective implementation of this policy demands that the OSC act vigorously to document the particulars of an incident to insure sufficient detail for evaluating unusual requests or claims.

The question is often raised whether the pollution fund may be used to fund damage assessment studies in preparation for potential claims which may be made for oil pollution damage. After a review of the legal background the Coast Guard has concluded that the pollution fund is not available for damage assessment studies. However, it is recognized that some form of limited scientific inquiry may be required to assist the OSC in the performance of containment and control activities. These inquiries may later be supportive of damage assessment efforts even though they may have originally been undertaken as part of the removal activity. Efforts to identify particularly environmentally sensitive areas and to evaluate alternative measures can be funded from the pollution fund. The National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR PART 1510) repeatedly refers to removal activities, Phase III, "Containment and Countermeasures" and Phase IV, "Cleanup, Mitigation and Disposal" as being eligible for funding under the 311(k) fund. It also specifies that scientific investigations unrelated to the removal activities are not eligible (40 CFR 1510.65(d)). In summary, the funding of scientific actions other than those that directly support control, containment, clean up, removal, recovery or disposal activities, will be provided by the agency with legal responsibility for those specific actions.

Question 2: For the record, if legislation establishing a single comprehensive liability and compensation regime for oil spills (such as H.R. 85) was to be enacted into law today would it:

--compensate victims suffering damages from the IXTOC I spill?

--apply to situations similar to the IXTOC I spill in the future?

--provide compensation to foreign victims from spills originating on the United States Outer Continental Shelf if the law of that country permitted U.S. victims to claim for damages under its law?

Answer: The question of liability, under any system, including that which would be established by H.R. 85, is one which ultimately is determined through judicial proceedings. The particular situation, in any case, is the major controlling factor in any remedy for damage arising from oil pollution. However, keeping this in mind, we believe it to be highly likely that, if a statute similar to H.R. 85 in its present form were enacted today, claims for damages for economic loss of the sort associated with the IXTOC I spill could be compensated under its provisions.

H.R. 85 provides that claims may be asserted for damages for economic loss incurred 180 days or more after enactment of the bill. While this precludes any compensation for victims who have already incurred losses from IXTOC I, it will apply to situations similar to IXTOC I in the future. The reason for this view follows.

The claims listed in the Section 103(a) are assertable when they arise out of or directly result from "oil pollution". "Oil pollution" is defined in the bill as covering a number of circumstances, Section 101(n). One of these circumstances is "the presence of oil ... in an unlawful quantity ... in or on the navigable waters or on land within the United States immediately adjacent thereto," Section 101(n)(1)(A). Section 311(b)(3) of the Federal Water Pollution Control Act prohibits, among other things, the discharge of oil into the navigable waters and their adjoining shorelines in quantities which may be harmful, 33 USC 1321(b) (3). Quantities which may be harmful are those which, among other things, cause a film, sheen, or discoloration in or on the navigable waters, 40 CFR 110.3.

In a spill situation similar to IXTOC I, oil would be present in quantities which would cause the conditions indicated in 40 CFR 110.3. Accordingly, it seems apparent that "oil pollution" would exist within the meaning of Section 101(n)(1)(A), and consequently Section 103(a), of H.R. 85. For this reason, claims presumably would be assertable under Section 103(a) of the bill.

The resolution of the question of the liability of the owner or operator involved in a case similar to IXTOC I, under Section 104 of the bill, would require further factual development and analysis. However, Section 104(f) seems to make the "fund" liable without limitation for the claims assertable under Section 103. The "fund's" defenses may or may not apply to specific claimants. However, in general, the limited "act of war" defenses would not be available from the facts currently available.

Therefore, while ultimate owner/operator liability is subject to question, it would seem that claimants for costs and damages stemming from a situation similar to the IXTOC I spill could recover from the "fund" established by Section 102 of H.R. 85.

Under H.R. 85, foreign victims could claim for damages arising from an oil spill originating on the U.S. Outer Continental Shelf under the provisions of Section 103(b)(6) if: the foreign claimant is not otherwise compensated for the loss; the oil pollution occured in the navigable waters or territorial sea or adjacent shoreline of the foreign country of which the claimant is a resident and; if recovery is authorized by treaty or executive agreement between the U.S. and the foreign country involved, or if the Secretary of State certifies the law of that country will permit a comparable remedy to U.S. claimants.

Question 3: Under both the Outer Continental Shelf Lands Act Amendments of 1978 and H.R. 85, unlimited liability exists for oil spill removal costs. In this regard, does the Coast Guard require that evidence of financial responsibility must be filed for removal costs above $35 million?

--From your knowledge, is private insurance coverage available to cover liability for removal costs in excess of this figure?

Answer: Unlimited liability exists for oil spill removal costs under the Outer Continental Shelf Lands Act (OCSLA) Amendments of 1978, Sec. 304 and in H.R. 85, Sec. 104(b)(5). Regulations implementing Title III of the OCSLA Amendments of 1978, 33 CFR 135.203, require evidence of financial responsibility to a maximum of $35 million in accordance with Sec. 305(b) of the Act. This is based upon the financial responsibility level specified in section 305(b) as being the lesser of the maximum liability provided for in section 304(b) or $35,000,000.

Private insurance capacity is available to meet this $ 35,000,000 requirement, and an additional $ 35,000,000 to cover owner or operator removal costs (which are not recoverable under the act unless the owner or operator is entitled to a defense of liability, see section 303(b)(1)). This information has been provided by American International Group (AIG) Oil Rig, Inc. It is understood that the London market also offers such coverage. However, both AIG and Lloyds have indicated that they will not act as insurers under the Act as long as they perceive their liability is not limited to the amount undertaken in the contract of insurance when a suit to collect damages is brought by direct action against the insurer under Sec. 305 of the Act.

QUESTIONS OF MR. BIAGGI AND ANSWERS SUPPLIED BY NOAA

1. *Do you intend to present a claim to the Federal Water Pollution Control Act's section 311(k)(5) fund for costs incurred by the Federal Government or the State of Texas in restoring or replacing any natural resources damaged or destroyed as a result of the IXTOC I spill?*

NOAA has not, so far, had any expenses for restoration or replacement of resources injured by IXTOC oil. NOAA will soon present a bill to the Coast Guard for reimbursement from the Clean Water Act § 311(k) fund for $490 thousand spent in responding to the IXTOC spill at the request of the On-Scene Coordinator under the National Contingency Plan. In addition, NOAA has spent $1.2 million of its own money on identifying natural resource injury from IXTOC, including damage assessment and investigations by the ship Researcher, which will assist in protecting those resources from the ongoing IXTOC impact and future oil spills. Any expenditure for restoration or replacement of resources for which the Federal Government is trustee would depend on identification of damage to the resource by the IXTOC damage assessment program NOAA has planned and proposed in conjunction with other responsible federal agencies and the State of Texas.

The United States Government is seeking to recover its expenses and damages to federal resources from IXTOC oil in the consolidated IXTOC lawsuit in Houston. If the government does not recover fully for its damages and expenses in that litigation, NOAA will consider making a claim for some of its unreimbursed expenditures from the 311(k) fund.

2. *From the information gathered by your Spilled Oil Research Team, what estimates can you make regarding the possible long-term environmental consequences, including impact on major Gulf of Mexico commercial fisheries, from the oil pollution arising out of the IXTOC I spill?*

Based on the limited amount of work that has been conducted thus far, no long-term environmental consequences have been ascertained nor have any significant effects on commercial species been observed. Although the total catch has not decreased, the long-term effects of the spilled oil may affect future catches. More extensive investigation of the long-term effects on commercial fisheries is planned pending the funding of the IXTOC I Oil Spill Damage Assessment Program through an interagency supplemental request.

It is expected that the spill may have an impact on the Kemp's Ridley sea turtle. The restricted nesting area of this endangered species in the Rancho Nuevo area near Tamaulipas, Mexico has been heavily oiled, and the losses resulting from at-sea oiling of migrating turtles and oil ingestion are presently unknown.

3. *From your observations, what physical changes and movements are taking place with respect to the existing oil slick resulting from the IXTOC I oil spill (including weathering, evaporation, dissolution into suspension or solution, sinking, or migrating)?*

   Do you anticipate any further threat posed to U.S. territory or natural resources by the oil slick?

(a) The IXTOC I oil in "slick" form on the surface of the water appears to be undergoing the normal weathering processes such as evaporation and dissolution. The specific details of these processes are currently being studied and preliminary results should be available in early summer. However, some general observations on IXTOC oil are:

   (1) Concentrations of evaporated volatiles at the wellsite, at least during the period of time that the Researcher was there, were strong enough to make personnel physically ill.

   (2) The chemistry of the oil changes with weathering. One indication of chemical alteration is the change in color of the oil over time. Colors observed are black, shades of brown, shades of red and orange.

   (3) The oil coming to the surface at the wellsite has been observed at different times as oil droplets and mousse. It has been suggested that this difference in physical appearance may be due to the force with which the oil leaves the well, and, therefore, that mousse formation is partially dependent upon the rate of expulsion from the well. On the other hand, it has also been suggested that the difference in form of the oil as it leaves the well could also be due to changes in chemistry of the oil over time.

   (4) It has been suggested that mousse formation within a slick as the oil leaves the wellsite may involve photochemical reactions. Mousse/oil banding has been observed which seems to correlate directly with periods of intense sunlight and darkness. (Other factors observed to influence mousse formation are windstress, debris in the water, etc.)

   (5) Well weathered slicks (in the vicinity of Texas) appeared to have formed a blackened "skin" over the main body of the orange mousse.

(b) NOAA's prediction is that there is a 5 per cent chance that oil will hit the Texas beaches in February, a 20 per cent chance in March, and almost 100 per cent chance in April if the well is not capped by March 1.

4. *Has NOAA applied to the Office of Management and Budget for a $9.8 million supplemental appropriation for damage assessment applicable to the IXTOC I spill?*

   In the alternative, has NOAA presented a claim to the Federal Water Pollution Control Act's section 311(k) fund for reimbursement of the cost of performing such a damage assessment?

(a) On December 13, 1979, NOAA transmitted to the Department of Commerce (DOC) a request for a supplemental appropriation to fund the IXTOC I Damage Assessment Program. This request was not prepared in time to be forwarded in the normal manner as an appendix to the FY 1981 DOC budget request. Therefore the DOC has deferred sending the supplemental request to OMB until this spring.

The $9.8 million figure in the question was the cost of an approximately three-year program projected in an October 1979 plan. This figure has since been revised to $7.5 million for three years. Thus, the supplemental request for FY 1980 will be for substantially less than $9.8 million.

(b) NOAA has not presented a claim to the Clean Water Act § 311(k) fund to pay for the planned IXTOC Damage Assessment Program. NOAA maintains that the 311(k) fund is available for damage assessment as an activity under the National Contingency Plan and as a basis for resource restoration or replacement. Therefore, NOAA might decide in the future to seek funding for the IXTOC I Damage Assessment Program from the 311(k) fund. NOAA is aware, however, that the 311(k) fund is needed to provide for immediate response and cleanup costs and runs out from time to time. NOAA has decided to put the damage assessment funding matter directly to Congress in a request for a supplemental appropriation, rather than tapping the 311(k) fund, which, if depleted, would necessitate a supplemental appropriation to replenish the fund.

5. *Could such a damage assessment provide the basis for validation and valuation of claims in support of recovery by the United States of damages from entities responsible for the IXTOC I spill?*

The IXTOC I Damage Assessment Program will evaluate our losses from IXTOC impacts on the following areas: human health; fish, shellfish; other wildlife, including birds, endangered species, and marine mammals; and socioeconomic losses such as recreational and associated business losses. The Damage Assessment Program has several objectives, among which are to provide a comprehensive estimate of damage from a major oil spill to assist future decisionmakers on oil-related activities and spill response, and to provide a basis for compensation of IXTOC injuries. As to use of the results of the damage assessment in the IXTOC lawsuit, it is uncertain whether the results will be timely for the Houston litigation. However, use of the damage assessment results for proof of damages in litigation or other forums is a possibility.

6. *To your knowledge, what cleanup and containment and/or mitigation activities has the Republic of Mexico undertaken to protect its own natural resources and environment from impacts resulting from the IXTOC I spill? With what results?*

We have virtually no reliable information on either protection measures or the environmental extent of the impact of the IXTOC I spill on Mexican natural resources and environments.

7. *In your best judgment, are oil spill mitigation measures - such as that contemplated under section 6 of H.R. 5577, establishing a saltwater fish hatchery -- necessary to reduce or avoid long-term damages resulting from the IXTOC I spill?*

The construction and operation of a saltwater fish hatchery contemplated in section 6 of H.R. 5577 could prove to be an interesting research project which may be operationally useful, however, in our judgment it would not significantly mitigate long-term damages to fisheries resources resulting from the IXTOC I spill. It is recommended that any compensation received by the State of Texas for injury to marine fisheries be applied to the refinement of damage assessment procedures and establishment of natural resource damage mitigation programs. Restoration and rehabilitation of fisheries habitat is preferable to replacement of individual animals.

QUESTIONS FOR THE STATE DEPARTMENT ON H.R. 5577 (IXTOC I OIL SPILL)

1. Was the Republic of Mexico a signatory to the U.N. Declaration on the Human Environment, emanating from the United Nations Conference on the Environment held in Stockholm, Sweden in June of 1972?

A. Mexico was represented at, and participated in, the proceedings of the United Nations Conference on the Human Environment. Mexico supported adoption of the Declaration on the Human Environment at that Conference; the Declaration was adopted by acclamation and not formally signed.

2. Does Article 21 of that Declaration codify customary international law in recognizing, along with those rights recognized under the Convention on the Continental Shelf of 1958 of a nation to exploit its offshore resources on its continental shelf, the additional obligation and responsibility to insure that those activities within that nation's jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction?

A. In the view of the Department of State, Principle 21 of the Stockholm Declaration restates existing customary international law. The U.S. representative at the conference stated:

> The United States of America considers it obvious that nothing contained in this principle (Principle 21), or elsewhere in the Declaration, diminishes in any way the obligation of States to prevent environmental damage or gives any right on the part of States to take actions in derogation of the rights of other States or of the community of nations. The statement on the responsibility of States for damage caused to the environment of other States or of areas beyond the limits of national jurisdiction is not in any way a limitation on the above obligation, but an affirmation of existing rules concerning liability in the event of default on the obligation.

3. Does Article 22 of that Declaration codify a complementary obligation of states to cooperate in the development of an international regime of liability and compensation of pollution and other environmental damage caused by activities within the zone of control of states to areas beyond their jurisdiction?

A. It is the view of the Department of State that in approving Principle 22 of the Stockholm Declaration States, including the United States and Mexico, recognized the principle that they should cooperate in developing international law relating to liability and compensation for pollution and other environmental damage.

4. Was Mexico a cosponser of U.N. General Assembly Resolutions 2996 and 2997 of December 1972, adopted by votes of 115-0 and 112-0 respectively, incorporating by reference the principles of customary international law set forth in Articles 21 and 22 of the U.N. Declaration on the Human Environment?

A. Mexico was a co-sponsor of both UNGA Resolution 2996 and UNGA Resolution 2997, adopted on December 15, 1972.

5. Does the incorporation of the principles set forth in the U.N. Declaration on the Environment and subsequent U.N. General Assembly resolutions provide a basis for the pursuit in international legal proceedings of the right of the United States to interpose claims against the Republic of Mexico for damages arising out of the Ixtoc I oil spill?

A. In the opinion of the Department of State, existing customary international law, including Principle 21, would support a claim against Mexico for damages arising from the Ixtoc I spill. There, are however, difficulties involved in pressing such a claim, including the terms on which the United States and Mexico have accepted the jurisdiction of the International Court of Justice. Both Mexico and the U.S. have accepted that jurisdiction with reservations which could be read as raising questions regarding the Court's jurisdiction over such an action. Agreement to pursue any claim through some other means, such as an arbitral tribunal, would require the agreement of the Government of Mexico. As the Mexican Government has indicated that in its view there is no basis under international law for such a claim, it is unlikely that it would accede to a request for third-party adjudication in such a forum.

6. In the event the Committee seeks an alternative approach to enacting interim compensation legislation applicable to the Ixtoc I spill, would you advocate the establishment of a special international or domestic commission to assess damages arising out of that incident and to consolidate compensable claims for later recovery from the Republic of Mexico through diplomatic negotiations or other means?

A. The Department considers that the United States should indeed be able to assess effectively the damage to its resources [illegible] The Department is aware that the National Oceano[illegible] (NOAA) has requested funds to conduct a major assessment program on the damages resulting from Ixtoc I and supports that request. In light of the expressed unwillingness of the Government of Mexico to provide compensation at this time for damage resulting from the Ixtoc I spill, however, the Department of State believes that the most effective means by which claims can be resolved is through the domestic courts as is now being done.

7. Has the United States interposed--or does it contemplate interposing on behalf of its citizens--private claims for damages resulting from the Ixtoc I spill to the Republic of Mexico for resolution through diplomatic or other means?

A. The Department has raised the question of compensation for damage resulting from Ixtoc I with the Government of Mexico. Mexico's unwillingness, to date, to discuss this matter has made unnecessary any decision whether any claim to be presented through diplomatic channels would include private as well as government claims. At the moment, the private claimants are pursuing their claims in the U.S. courts.

8. In your judgment, does section 1605(a)(2) of the Foreign Sovereign Immunities Act of 1976 (Public Law 94-583) provide a basis of domestic jurisdiction for suits by the United States or other parties suffering damages as a result of the Ixtoc I spill, to bring suit against PEMEX--the commercial oil and gas monopoly of the Government of Mexico?

A. As the application of section 1605(a)(2) of the Foreign Sovereign Immunities Act of 1976 is at issue in suits arising from the Ixtoc I spill, the Department of State prefers not to comment at this time on a matter in pending litigation. The Department of Justice will express the views of the United States in court as appropriate.

9. In the alternative, do you agree that pursuant to Articles 29-31 of the Regulations on Petroleum Works of February 21, 1973, issued by the Ministry of National Patrimony, Mexico D.F.; and Article 105 of the Federal Constitution of Mexico of 1917; section V of the Original Law of the Judicial Power of the Federation, as amended; and Article 18 of the Federal Code of Civil Procedure, that the United States and private parties may sue PEMEX under Mexican law with original jurisdiction lying in the Supreme Court of Justice of Mexico?

A. The Department of State cannot offer any opinion on the content of foreign domestic legislation or its applicability to a particular case. Private parties wishing to pursue their claims through the Mexican judicial process should contact qualified counsel in Mexico to obtain an opinion on the utility of pursuing a claim under the provisions of Mexican law cited.

10. A suggested alternative to interim compensation legislation such as H.R. 5577 is to incorporate within pending comprehensive oil spill liability and compensation legislation a provision making such a regime retroactive to claims for damages arising out of the Ixtoc I oil spill.

-- Where such a provision included in pending legislation, would you anticipate the Federal government eventually seeking recoupment from the Republic of Mexico for claims compensated under such a retroactive provision?

-- Should such a provision be made retroactive only to the Ixtoc I oil spill and not to other recent incidents such as the BURMAH AGATE-MIMOSA collision and oil spill near the Port of Galveston, Texas?

A. In the event Congress enacted comprehensive oil spill liability and compensation legislation retroactively applicable to Ixtoc I claims, the government would presumably be subrogated to private claims compensated under such legislation and would therefore be entitled to pursue such claims on behalf of the fund created by law.

-- As stated in testimony before the Committee, it is the Administration's position that comprehensive legislation which would be applicable to all such incidents is preferable to a piecemeal approach and that the retroactive application of such legislation would raise difficult questions. On this latter point, however, the Department would be willing to consider whether such difficulties could be overcome.

STATEMENT OF A PANEL CONSISTING OF: REAR ADM. WAYNE E. CALDWELL, CHIEF, OFFICE OF MARINE ENVIRONMENT AND SYSTEMS, U.S. COAST GUARD; ACCOMPANIED BY COMDR. JOSEPH L. VALENTI, MARINE ENVIRONMENTAL PROTECTION DIVISION; AND JAMES P. WALSH, DEPUTY ADMINISTRATOR, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION; ACCOMPANIED BY MARTY BELSKI, DEPUTY GENERAL COUNSEL, NOAA, AND CAPT. LARRY SWANSON, DIRECTOR, OFFICE OF MARINE POLLUTION ASSESSMENT, NOAA; AND MARY ELIZABETH HOINKES, ASSISTANT LEGAL ADVISOR FOR OCEANS, ENVIRONMENT AND SCIENTIFIC AFFAIRS, DEPARTMENT OF STATE; ACCOMPANIED BY TUCKER SCULLY, DEPUTY DIRECTOR OF THE OFFICE OF OCEANS AND POLAR AFFAIRS, DEPARTMENT OF STATE

Mr. BIAGGI. Admiral Caldwell.

Admiral CALDWELL. Chairman Biaggi, Chairman Breaux, and members of the subcommittees:

I am Rear Adm. Wayne E. Caldwell, Chief of the Office of Marine Environment and Systems.

I am accompanied by Comdr. Joseph L. Valenti of the Marine Environmental Protection Division. I am pleased to appear before you today to present the Coast Guard's views on H.R. 5577, the Ixtoc I Oil Pollution Compensation Act of 1979.

Events of the past summer and fall underscore the fact that random and infrequent catastrophic discharges do and will continue to occur: The collision of the supertakers *Aegean Captain* and *Atlantic Empress* off the coasts of Trinidad and Tobago in July; the collision of the Liberian tanker *Burmah Agate* and the Liberian freighter *Mimosa* in November, 1½ miles south of the Galveston Harbor entrance buoy; and the subject of the bill under consideration, the blowout of the Mexican exploratory well Ixtoc I in the Bay of Campeche in early June.

For your interest and information I will summarize current activities relating to the Campeche spill.

Beach cleanup operations continue in the Port Aransas and Port Isabel areas. Coast Guard field and national strike force personnel continue to monitor these operations.

Commercial contractors have removed a considerable amount of materials and the State of Texas is coordinating disposal operations.

Continuing aerial surveillance indicates that there is considerably less oil on the surface of the water in the vicinity of the wellhead. Southerly flowing currents are confining the oil to the lower Bay of Campeche. The extent and success of collection and capping efforts at the wellhead is unknown, but there has been some improvement.

Through the mechanisms established by the national contingency plan, we have been reasonably successful in the cleanup of oil impacting our gulf coast beaches and in minimizing the intrusion of oil into the more highly sensitive environmental areas.

Funding for our response activities on U.S. shores is being provided by the Federal Water Pollution Control Act section 311(k) pollution revolving fund. The on-scene coordinator is operating under an allowance of $7 million. To date, about $6.1 million has been obligated. That figure does not include the costs incurred by the U.S. Coast Guard for well site response operations, since the Government of Mexico has agreed to pay the costs of U.S. activities at the well site.

Oil pollution from Ixtoc I is affecting a large geographic area of the Gulf of Mexico and the Gulf Coast States. The future consequences of the spill on the general marine environment or on specific marine life exposed to the discharge are unknown.

However, as you are aware, the Federal Government, primarily under the leadership of the National Oceanic and Atmospheric Administration, is developing an assessment program. There have been economic impacts on the gulf tourist and commercial fishing industries, but the extent of these impacts is unknown.

The blowout of Ixtoc I is an unfortunate reminder of the inadequacies of existing remedies under domestic and international law for coping with the entire oil pollution system. Existing domestic statutes provided the authority for responding to, and cleaning up, the oil pollution in the waters of the United States caused by the Campeche incident, and provided the funding for Federal removal actions.

The compensation for economic and environmental losses, is another matter. Some avenues for compensation are available under existing law and indeed some parties have asserted damage claims against the owner of the drilling rig, Sedco, Inc., of Dallas, Tex., in the U.S. District Court for the Southern District of Texas.

Because of the location of the spill source, existing statutes do not provide a quick and effective means of compensation to U.S. citizens for economic losses incurred.

Consequently, gulf coast shrimpers and fishermen, motel/hotel owners, and the Federal and State Governments, as protectors of the natural resources, are without a timely means for recompense.

H.R. 5577 attempts to rectify this situation by proposing legislation specifically tailored to provide compensation for economic losses to victims of the Campeche spill. While the administration can fully sympathize with those private parties who have sustained injury as a result of the incident, we urge enactment of a more comprehensive bill, such as H.R. 4566, rather than legislation that would solve the damage compensation problem on a spill-by-spill basis.

Unfortunately, these spills do continue to occur, and we believe comprehensive legislation, as proposed by the administration, is essential to assure equal protection for all who are damaged by such spills.

Enactment of special purpose compensation legislation of the type represented by H.R. 5577, could impede the progress toward enactment of the more comprehensive proposals.

In conclusion, while we will continue to take maximum advantage of our existing statutory authority for pollution response and law enforcement, it is evident that the major gap remaining in our Nation's spill pollution program is the need to provide a uniform, timely means of compensation to those suffering pollution damage.

I reemphasize that it is the more advisable to enact comprehensive legislation now rather than to endorse a piecemeal approach through passage of legislation dealing with specific catastrophic occurrences.

Mr. Chairman, that concludes my statement. I appreciate the privilege of having been here, and I will be pleased to answer any questions you may have.

Mr. **Biaggi.** Mr. Walsh.

Mr. **Walsh.** Thank you, Mr. Chairman. I will summarize my statement for the record.

I am James P. Walsh, Deputy Administrator of NOAA. With me today to answer any questions you might have is Mr. Marty Belski, Deputy General Counsel, NOAA, and Capt. Larry Swanson, Director, Office of Marine Pollution Assessment in NOAA.

We want to stress why we believe comprehensive legislation to provide for cleanup from and damages resulting from oilspills should be enacted as soon as possible, and to discuss with you our efforts to put together a damage program for the Ixtoc spill.

This has been a serious spill. We have had another accident in the area since then, which reminds us that we will quite likely have more in the future. We are all learning more and more that we must reform the outdated common law, and the incomplete statutes which presently deal with compensation to victims of oilspills.

Although action has been taken in the Clean Water Act, the Alaska pipeline bill, and the Outer Continental Shelf Land Act, to improve the existing statutory authority through which people can be compensated, and to make sure that they are compensated in the most timely fashion possible, we believe that it would be fundamentally unfair to select this incident, Ixtoc I, for compensation, and to ignore the other accident that occurred near Galveston, and possibly others that may occur in the future. Therefore, we prefer the comprehensive approach, and urge this committee to move as quickly as possible to press for the passage of this legislation and final enactment, and have it sent to the President.

Let me now turn to the damage assessment program that we have been charged with putting together. At the time the accident occurred, we realized that this would be a unique opportunity to put together a program to evaluate the damages that would occur. For one thing, the accident itself was unfolding in a manner which provided us an opportunity to become prepared for the arrival of the oil in our waters, and then to study what effects it had on the resources of concern to us. To follow on, we have been leading an effort to put together a program which would assess the effects on natural resources, and the socioeconomic damages which have occurred.

At the present time, we have completed our review among the Federal and State agencies involved, as well as other private interests, to put together a damage assessment program which is now acceptable to the various agencies that are involved.

We will shortly be forwarding the plan for approval by the national response team, and then proceed to find funding for the program.

At the present time, however, we are undecided on how much will be made available, although agencies have indicated their willingness to provide funds.

We think that, with a comprehensive program, we will begin to do not only an assessment, and provide a better understanding of what occurred in the Ixtoc situation, but quite likely to give us a better understanding of what generally occurs in oilspill events.

In the past, it is well known there is a wide difference of opinion about the effects of an oilspill, about effects not only in the short term, but in the long term. We do not have a clear understanding about the cause-and-effect relationship between oil that is spilled on the water, and for example, a diminution in fishery resources the next year.

There are certain things that we do know. We know in the short term injury will occur to certain resources; that the tourist industry is affected; that the fishing industry can catch contaminated fish or shrimp. But on the broader questions, what effect will the spills have on the next season—on the finfish catch—is something we do not understand, and it is something we wish to explore.

We are now at the point where we have put together what we believe is a good plan. It is a cooperative plan that involves local agencies and we will be glad to provide the committee with a copy of our plan, as well as the technical development plans that further elaborate on the studies that we are proposing.

Mr. Chairman, that summarizes my statement. I will be happy to answer any questions.

Mr. **Biaggi**. Thank you very much.

Ms. Hoinkes.

Ms. **Hoinkes**. Chairman Biaggi, Chairman Breaux, and members of the subcommittee:

I am Mary Elizabeth Hoinkes, Assistant Legal Adviser for Oceans, Environment and Scientific Affairs for the Department of State.

With me today is Tucker Scully, Deputy Director of the Office of Oceans and Polar Affairs.

I am pleased to appear before you to present the views of the Department of State on H.R. 5577, the Ixtoc I Oil Pollution Compensation Act of 1979.

The damage to U.S. resources and the Texas coast, caused by oil escaping from the Ixtoc I exploratory well, as a result of the blowout last June 3, has raised many serious questions concerning the adequacy of existing international arrangements, and the application of international and domestic law to issues involving compensation of damages incurred as a result of transboundary pollution.

H.R. 5577 is one response to one aspect of these questions, which, however, addresses this single aspect in the context of a single incident—Ixtoc.

As has already been noted by witnesses from the Departments of Commerce and Transportation, the administration does not support such a piecemeal approach. Rather, we believe that a comprehensive approach, providing compensation for damages resulting from all such incidents, must receive the full attention of the Congress.

For this reason, we oppose the approach of H.R. 5577. As you know, when it became apparent that oil from Ixtoc I was affecting waters and resources subject to U.S. jurisdiction, and reaching the beaches of Texas, the Department of State contacted the Government of Mexico, suggesting the initiation of discussions concerning the spill, specifically including, among other matters, questions of liability and compensation for damages resulting from the June 3 blowout.

The Mexican Government informed us that it was not at that time prepared to enter into such discussions, noting as well its belief that there is no basis in international law for Mexican liability for damages resulting from the Ixtoc I incident.

We do not share this view of international law, and while we are aware of Mexican sensitivities with respect to the blowout, as well as sensitivities with respect to other transboundary problems which have arisen in the past, the Department was disappointed at that Mexican response.

President Carter raised the issue again when President Lopez-Portillo visited Washington in December. At that time, as reflected in a joint statement to the press upon the conclusion of their meeting, the two leaders expressed their interest in enhancing the environment along the border, and preserving the quality of life in the region. They agreed on the need for both countries to prevent events or actions on one side of the land or maritime boundary from degrading the environment on the other side. They agreed to work within the consultative mechanism to determine if it is possible to conclude agreements for measures by both countries to lessen or eliminate environmental damage in the future.

This will be an important undertaking that could greatly benefit both countries in the future. The Department of State believes it important to develop more complete information from all sources, concerning the events which took place at Ixtoc I on June 3, and the extent of actual damage to private parties and to resources of the United States.

We remain hopeful that in due course we will be able to enter into constructive discussions with Mexico regarding all the pertinent issues.

In the absence of agreement with Mexico regarding compensation, there is at the present time only one means by which injured parties may press their claims, and that is through litigation.

Many of the affected interests have already brought suit in Federal court in Texas seeking damages from both American and

Mexican entities involved in Ixtoc. In the course of time, these proceedings may provide just redress.

The inevitable uncertainties and delays of the judicial process, however, underscore the need for both international mechanisms and domestic legislation through which prompt and adequate compensation for victims of transboundary oil pollution and other international environmental hazards may be assured.

The Department of State joins the other agencies testifying today in urging that the Congress take prompt action to enact the Administration proposal, H.R. 4566, thereby establishing a comprehensive regime for the protection of U.S. citizens from financial loss due to environmental hazards.

Ixtoc I is the most dramatic blowout which has affected our marine environment, but it is not the first, and most likely it will not be the last.

Thank you for this opportunity to present our views.

Mr. BIAGGI. Without objection, all of the statements will be included in the record at the conclusion of your testimony.

Admiral, Senator Schwartz testified that the private segment of the marine industry placed a higher priority on the containment process. I posed the question to him on that basis, and I don't know if I received the most informative response, or at least, a response that would satisfy me.

What is your assessment of his assessment as far as priorities are concerned? And, No. 2, what is the relative state of the Coast Guard's technology compared to the industry's technology, as far as cleanup and containment is concerned?

Admiral CALDWELL. Well, sir, I have great respect for Mr. Schwartz' right to have his own opinions, and I certainly have fought in three wars to respect his right to express them; but I disagree with him.

I think we have a very capable capability. I think we are working to improve that capability. I think there is no question that Ixtoc proved we have the finest offshore capability in the world today.

He has a different opinion as to how booms and things will be employed. We have a national response that responds to these suggestions of anyone who wishes to give advice, but when you get down to the nitty-gritty, it is the on-scene coordinator who has to bite the bullet and make the decision with the resources available to him.

I make no apology for what the Coast Guard has done. We have learned a lot. We have made mistakes, which we hope we will not make again.

Mr. BIAGGI. You will make others.

Admiral CALDWELL. I am sure we will, but we hope we won't repeat them.

Mr. BIAGGI. A recommendation was made by Mr. Thompson for an international response team. I think each of you can respond to that.

What is your reaction to that suggestion, and what is your assessment as to the response effort in connection with Ixtoc I?

Admiral CALDWELL. Well, sir, I certainly endorse that, and the Coast Guard endorses it very highly. In fact, at this very moment, Captain Corbett, whom you know very well, is in Toronto discussing a bilateral agreement that we have in the process with Canada.

Approximately 1 year ago the Coast Guard submitted its version of a proposed bilateral agreement with Mexico for an agreement on international incidents of this type. What the status of that is, sir, I don't know, but we are very, very interested in this type of thing.

We were in the Bosphorus, just 1 week ago, sent our people, members of our strike force team, for consultation on the Bosphorus incident. We also sent personnel to Argentina to discuss with them the Metula in the Straits of Magellan.

We believe in this. It is just one of those things which it is very difficult to get all the nations of the world together to do.

The way we are going at it is, basically, is bilateral agreements in areas adjacent to the United States.

Mr. BIAGGI. It would seem to me that is a very important first step, both countries being contiguous.

Ms. HOINKES. Mr. Chairman, the conclusion of an agreement with Mexico which will provide a basis for response to such incidents, a joint contingency plan for dealing with oil spills and other substances, is of the highest priority. We anticipate that this agreement may be concluded in the very near future.

We have submitted a draft as the Admiral indicated. We are awaiting Mexican comments.

We look forward to negotiations taking place quite soon, that being the first item on the agenda for our general endeavor to reach agreement on means of dealing with environmental problems of mutual concern.

Mr. Scully might wish to add something.

Mr. SCULLY. I don't think I can add too much to what Ms. Hoinkes has said.

We have modeled the draft contingency plan on such arrangement that we have with the Canadians, an arrangement which has proved effective in incidents involving potential transboundary pollution hazards. It is flexible and is continuously updated. We modeled the proposed plan for a United States-Mexican contingency arrangement on the Canadian plan, and we very much hope to have it in place soon.

Mr. BIAGGI. That is nice to hear; at least there is some progress.

Now, you know where your proposal is, Admiral. It is moving along in State.

Mr. Walsh, you make reference to some comprehensive legislation, and that the Ixtoc incident shouldn't be dealt with on an individual basis or piecemeal basis, and perhaps I will agree with you.

But I will repeat, this committee has produced legislation which, if enacted into law when it was first proposed, would have covered the situation.

At this point, there seemed to be general support when it appeared that nothing really was possible, and when it developed that the legislation in fact was possible, then people from other quarters thought it should be expanded upon because there was another area of concern, to wit, the hazardous substances consideration. And no one disagrees that they must be dealt with.

But the net effect of that add-on has been to delay the enactment of the basic legislation. Whether or not this Congress will produce any form of comprehensive legislation remains to be seen.

Should not this incident, and repeated incidents, encourage the enactment of the basic superfund bill?

Mr. **Walsh**. Mr. Chairman, in response, in terms of the——

Mr. **Biaggi**. Only insofar as it would be expeditious. That is my chief concern, really, because we have mutual concerns.

Mr. **Walsh**. Legislative strategy runs into all kinds of practical problems as you try to move a law through. It has been 10 years. One would think that every incident that has come along would help it.

It started with Santa Barbara. It got a little more steam behind it with the *Argo Merchant*, and here we are with Ixtoc. But we do not have a piece of legislation in place.

We share your concern. We believe that the Congress, of course, has some alternatives before it. But primarily we would like to see a comprehensive bill, including hazardous substances. Hazardous substances moving by water are increasing dramatically, and the compensation and liability problems that come from hazardous materials pose much the same difficulties as oil spills, and have the same problems in the law.

We are afraid that if you do take away the steam that you have as a result of recent incidents, by passing piecemeal legislation, the comprehensive approach will not come into being, and as a result, every time an accident occurs, a special bill will have to go through Congress and go through the practical difficulties of passing a bill in any Congress in order to provide compensation for victims.

We believe that that is not the right approach. And we believe the legislation we have provided will do something more than would have been available to the victims of the *Torrey Canyon*. They had exactly $65 to split among themselves.

Such an amount is absolutely unacceptable, and should be remedied. We do not understand why Congress has not seen the wisdom of passing that legislation.

Mr. **Biaggi**. One of the reasons why the legislation has not been enacted is that we keep getting suggestions from different agencies that it should be made broader, that something else should be added on to it.

I agree that there should be a comprehensive bill enacted into law. We have done it.

I may also share your opposition to this legislation. I am not convinced that this piecemeal approach is a proper way, but I am directing my attention to the larger picture, because we find history repeating itself, and they are making a yo-yo out of the passions of people after each spill.

Now it is down in the gulf. Another time it is up in New England with *Torrey Canyon*, and then it is Santa Barbara. There is much exercise after each event, and no substantial progress.

What I am saying is, that the agencies should think in terms of the practical approach to legislation, and I think there is equal support for both facets, oil and hazardous substances.

We don't even object to hazardous substances being included, but let's move it.

I appreciate your testimony this morning, but I am taking this opportunity to emphasize our concern for expeditious processing of the comprehensive bill.

Mr. WALSH. The only thing I can say is that our preference is for a comprehensive bill. I am not convinced that the President would veto an oil-only bill if that is the problem that you have.

Mr. BIAGGI. The Senate would veto. Thank God, they are not empowered with that authority. That is where we seem to be hung up, though; the Senate.

Yet, they permit the condition to continue. I am convinced that the President would not veto the bill.

Mr. WALSH. It may take a tanker accident in Maine to get it moving.

Mr. BIAGGI. Just before election?

Mr. WALSH. Right.

Mr. BIAGGI. We understand. I like it when it comes right out. Mr. Breaux?

Mr. BREAUX. We could be successful if we moved toward a unicameral operation.

Mr. WALSH. You mean get rid of the House of Lords—no.

Mr. BIAGGI. I wouldn't want to do that too quickly, because some of us may want to spend some of our waning years in the other House.

Mr. BREAUX. Heaven forbid!

I wish to thank everybody for their statements, and their participation. We have been around and through this on a number of occasions, and at different locations. We know everyone's position on it.

Everyone realizes that the comprehensive oil spill that the chairman of the Coast Guard Subcommittee worked so hard on is a good product, and one which I would support if we could get it to the President, and I think he would sign it.

I don't think it will get there, because there are some practical problems in the other body. We have tried it in two Congresses, and they sit on it. I don't get the idea that they won't sit on it again. If you support the compehensive legislation to be a better way of handling it in Texas, I agree with you. A comprehensive bill is better than a special bill; there is no doubt about it.

Mr. Walsh pointed out to us that, fundamentally, it is unfair making this applicable to the Texas situation. Why is that unfair? If we passed the comprehensive bill tomorrow, it wouldn't take care of the Texas oil spill. We will not make it retroactive.

Is it the recommendation of the administration to make it retroactive? I don't understand the rationale.

Mr. WALSH. I think the answer is that what you would be doing, in effect, is taking tax dollars from people who might be injured in Galveston by the recent tanker accident, and transferring them to people in Corpus Christi. They would be rather upset if they didn't get compensation as well.

What we are proposing is that there be a comprehensive bill not funded by tax dollars, but funded by oil that is moved through the United States, a fund that is the burden of the consumer of the oil who benefits from the oil.

Mr. BREAUX. With that understanding——

Mr. **Walsh**. The people in Ixtoc have a problem, but there are a number of people with the same problem. How do you select between them?

Mr. **Breaux**. I understand. Would the administration be in a position to recommend that it be made retroactive if it comes from a fee in Ixtoc I?

Mr. **Walsh**. I can't speak for the administration until the proposal is put to us. Should you move to that kind of legislation, though, we can respond. Presently the legislation that is before you is prospective only.

Mr. **Breaux**. What would NOAA's position be on the concept of making it a fee basis, making it retroactive to cover this instance?

What would NOAA's recommendation to Commerce be, and up the line?

Mr. **Walsh**. You want me to state NOAA's position without considering the Administrator?

Mr. **Breaux**. What would your recommendation be to the Administrator of NOAA?

Mr. **Walsh**. What my personal view would be—that is easier. I think it should be retroactive to this accident. It is unprecedented.

The only caveat I have is, where do you cut it off? You may have problems selecting how far back you are retroactive. What about the people who might have gotten injured in the *Argo Merchant* incident who have sued and who have gotten no compensation?

What about the people in Santa Barbara who sued and got nothing? The same dilemma presents itself.

Mr. **Breaux**. The Coast Guard. Admiral Caldwell, what are your thoughts?

Admiral **Caldwell**. I would agree with what Mr. Walsh said. As a person, in no way am I going to speak off the cuff for all the people who sit above.

Mr. **Breaux**. It has to start somewhere.

Admiral **Caldwell**. We feel strongly as a service, and as the administration, for those people who have had losses. As I have said to you people many times, my job is trying to protect the environment initially from a spill, and to clean it up once it occurs.

But I do feel that efforts should be for the comprehensive legislation. It is not only a tax on oil, but the chemicals should be included. I do not think that the oil industry or the users of oil should have to tote the expense for damages for all those people that might have been damaged from a chemical spill of some type.

Mr. **Breaux**. Ms. Hoinkes, would the State Department be involved in that or not?

Ms. **Hoinkes**. Yes, Mr. Chairman. We have given some thought to this, while recognizing that in any consideration of retroactivity, there are problems that have to be faced, and they are difficult.

There is something innately discriminatory about the date of enactment. Some people are going to benefit and some are not.

From the point of view of the particular international problems that surround the Ixtoc spill, and recognizing that many of the incidents that would be dealt with in comprehensive legislation would not themselves involve the particular type of problems that are involved with Ixtoc, we would be prepared to very favorably recommend to our Department that serious consideration be given to working out the means of covering the Ixtoc situation in any comprehensive legislation.

Mr. **Breaux**. I am glad to hear that, because those policy decisions are, to a large extent, formulated by recommendations from the ranks, and I consider you to be the people who make solid recommendations on policy decisions.

In the Corpus Christi hearings, I called for a coordinated effort to establish with Mexico a procedure so we do not run into the same problem in the future that we are discussing in this instance, where basically, in the beginning, we were not talking to each other, where they refuse any liability, or refused to talk about paying any claims to third parties who suffered damages.

We have a similar type of arrangement with the country of Canada, Ms. Hoinkes. We have, in fact, made claims and have had them paid by the country of Canada.

Have we made any progress? Has anything been done with the Government of Mexico to establish some sort of bilateral agreement for future instances of this nature.

Ms. **Hoinkes**. Mr. Chairman, we are looking forward to undertaking discussions with Mexico which will deal with the very broad range of environmental issues, arising out of the visits of the Presidents in September.

As I mentioned earlier, one of the first items that will be receiving our attention is the development of a joint contingency plan for reaction to oilspills, containment and cleanup.

Mr. **Breaux**. Could you tell us who is handling that for State, what person?

Ms. **Hoinkes**. These discussions will be undertaken under the auspices of the consultative mechanism, and we would anticipate within the next several months that we will be sitting down with the Mexicans to proceed.

Mr. Scully will be involved, and the counselor of the Department, by virtue of his role in the consultative mechanism, will probably be heading the delegation in those discussions.

Mr. **Breaux**. I would be the first to urge the seriousness of this. It is not just something that I asked for. That should be given top priority.

Their initial plan was to drill one new well every 2 weeks. If they have the same success ratio, we have got a lot of problems, particularly if they don't want to talk to us about the liability.

I would also urge that the State Department consider making good use of some Members of the House, not everybody, who are very adept at international diplomacy like the gentleman who sits to my right, and is very well respected.

I would be the first to admit that it is not unanimous in the House that we have this capability, as has been exhibited recently; but I would urge you to involve the Members of Congress who have an interest in this matter to try to work out the situation with Mexico.

Thank you, Mr. Chairman.

Mr. **Biaggi**. Mr. Forsythe?

Mr. **Forsythe**. Thank you. Mr. Chairman. I am very gratified to hear the admiral say the oil companies should not be paying for the dangerous substances problem. That is one problem.

How are you going to place the cost where the action is? I do hope that the administration really gets together in that kind of situation, and gives it the high priority that this needs, to not only look for a place to place the liability, but a place where there is fairness in compensation, because that may be one of the great problems in anybody getting together on this situation.

And by the same token, Ms. Hoinkes, I am concerned about using again our industry dollars to cover an international situation. There is an inherent unfairness there.

I appreciate that developing a program with Mexico has many difficulties. I am afraid our detail is not in all that good shape. Because if we think of nothing else, we can look to the Colorado River, which Mexico is looking to us to keep our salt on our side.

They might think we could stand a little oil, since they are taking a lot of salt. But it is serious, at least as far as the superfund bill is concerned. It needs the full attention of the administration, and some flexibility so we can get the bill.

Maybe if we don't get everything in the first step, we could get it as it goes down the road. I agree with the administration witnesses that the comprehensive bill is far more important.

Thank you, Mr. Chairman.

Mr. Biaggi. Mr. de la Garza.

Mr. de la Garza. Thank you, Mr. Chairman.

I would like to again repeat my commendation of the Coast Guard, and NOAA, which worked with them, and the other agencies.

Mr. Chairman, all three of the witness on behalf of the administration, have expressed support of the comprehensive legislation until Chairman Breaux brought up the fact that they did not make it clear that this does not indicate approval of retroactive coverage of Ixtoc; is that correct, from all three of you?

Mr. Walsh. The official position of the administration?

Mr. de la Garza. Right.

Mr. Walsh. The official position of the administration is to support the comprehensive legislation we have submitted and which has been discussed.

Mr. de la Garza. That does not make it clear whether you include retroactive coverage for Ixtoc.

Mr. Walsh. We have not addressed the issue as to whether retroactive coverage for Ixtoc could be provided as an administration proposal.

Mr. de la Garza. So the administration says, we want comprehensive legislation, sometime—whenever?

Mr. Walsh. We are opposed to piecemeal legislation.

Mr. de la Garza. But you don't tell us if the comprehensive legislation encompasses what we are trying to do with the piecemeal.

Mr. Walsh. We were asked to comment on the legislation. If you offered us an amendment, if you asked us to comment on an amendment to the comprehensive bill, you might have gotten a different answer.

Mr. de la Garza. I know that you individually weren't the sole person involved in working out the presentation, so we will let that go by.

But I think your statements are certainly inadequate when you espouse comprehensive legislation in a hearing on Ixtoc, and then don't know whether it covers it or not. I think that is totally inadequate.

Now, Ms. Hoinkes, and I agree with your suggestion that your Department would favor inclusion of Ixtoc, but I have some information that this has been forwarded to the Office of Management and Budget, and they have said, "No."

Do you have that information?

Ms. HOINKES. I tried to respond rather carefully, Mr. de la Garza, when the chairman put to us the question of whether or not we could support retroactive legislation. My response to that was that individually, certainly, I would be willing to recommend to the Department that serious consideration be given to supporting legislation that would be retroactive with respect to Ixtoc, bearing in mind particularly the international characteristics of that problem which set it aside, and raise particular concerns.

At the same time, we have all addressed, in considering generally retroactive legislation, and are appreciative of, the problems of cutoff dates and who is affected by legislation that is retroactive; we have therefore not gone forward to date in developing an administration position on retroactivity in terms of the comprehensive legislation, because the problem had not arisen in this context, at any rate.

And I think that while you are quite right in indicating that many of us may have had some guidance, that the administration was not prepared at this time to develop a position on retroactivity.

I think we would all be willing to urge our agencies to take another look at that.

Mr. DE LA GARZA. I consider it—I cannot reach the word—that you would come here, all of you, on behalf of the administration, and say that you support comprehensive legislation, which I do, also, and then say that the question of retroactivity had not come up, that Ixtoc had not been discussed.

I think you play this committee for fools to come before us to endorse legislation not knowing whether it covers the subject matter to which you come to address yourself.

I know that none of you are personally to blame for that, but wherever the blame lies, I hope it falls with some impact from this committee; at least from one member.

I am totally amazed that the administration would send a hierarchy of representatives to say they are not prepared to discuss the basic issue and the thrust of what this hearing is all about.

I find it utterly amazing.

I would like to tell you, Ms. Hoinkes, you mentioned that Mexico is reluctant to even discuss this. There was some concern in my area that in part this reluctance was elicited from them because of Ambassador Krueger making public, at least so Mexico would say, the contents of a note before they had a chance to reply.

This was attributed, by some, to Ambassador Krueger's inexperience in diplomacy in general, and United States-Mexico relations in particular.

I have had it from sources in the State Department that he was under orders to do so; that the Mexican Government and/or some individual therein was advised that this would be made public prior to its having been made public. Then I would quarrel with whoever made that decision, because certainly, there was damage.

If that were a factor in the Mexican response, certainly it was disastrous diplomacy and our attempt to at least discuss those issues with them.

So with all due respect, through you, to the State Department, I place some blame for the predicament on that illustrious group there, and I wish you would carry that message back, although I have mentioned it, I guess it is proper to say, to the Secretary of State himself, about my concern over that particular incident.

I am still amazed to see you come up here and say you are not prepared to discuss the basic issue.

I think I am the chairman now by rank, so do you have any further questions?

Mr. **Wyatt**. Mr. Chairman, I am going to have many questions. We have until 1:20 p.m. to vote, and then there is a 5-minute vote after that. My questions will run much longer.

Would you like me to begin?

Mr. **de la Garza**. We have a vote on the floor, to be followed by a recorded vote on an amendment which gives us whatever balance it is of 15 minutes plus 5.

Mr. **Wyatt**. Eight.

Mr. **de la Garza**. Is Mr. Wolfe here?

Do you have any problem waiting or coming back later? Do you have any time problem?

Mr. **Wolfe**. No, sir.

Mr. **DelaGarza**. What about the witnesses at the table? Would you prefer for us to recess for 15 to 20 minutes to attend to our session, or would it be preferable to come back within a half-hour or 45 minutes?

Ms. **Hoinkes**. At your convenience.

Mr. **Walsh**. It would be nice to come back on a full stomach; 45 minutes is better.

Mr. **Wyatt**. It is all right with me.

Mr. **de la Garza**. It may be too long. No, it is 1:15. I have lost track of time.

Well, we will return between 1:45 and 2 o'clock. Try to be here at 1:45.

The committee will stand in recess until 1:45 p.m.

[The hearing recessed until 1:45 p.m.]

AFTERNOON SESSION

Mr. **Wyatt** [presiding]. The subcommittee will come to order.

I met Chairman Biaggi briefly on the way over here, and he asked me to convene and proceed with this group of witnesses.

With the committee's indulgence, I would like to begin by making a statement and then following it up with some questions.

The comment has been repeatedly made by this series of witnesses that this legislation is a piecemeal approach to a problem that comprehensive legislation should be able to take care of.

It is my opinion in introducing the legislation, and I would assume from Mr. de la Garza's previous comments that, even though it is a piecemeal approach, the situation at Ixtoc I is a unique situation which has occurred to the people of the United States.

It is unique in that it is an oil well blowout which occurred in international waters. It has international repercussions which appear to be unresolved.

Because of that, although this is special legislation, we should seek to compensate American citizens in a situation which we have not encountered in the past and we should further support the legislation so that there will not be citizens along the gulf coast of Texas who have lost their income or who we believe, in retrospect, have had the environment on which they rely damaged and endangered.

Again, I will reiterate my opening comment. It seems to me from all three witnesses that have appeared today in asking for comprehensive legislation and in almost every instance saying there has been lost to citizens of the United States, what we are hearing up to now has been that we should leave thousands of citizens along the gulf coast of Texas dangling and twisting in the wind while we worry about some other legislation which will not, as far as I know, have any impact on those citizens.

Mr. Walsh, does the comprehensive legislation currently impact on, and could it be used by the citizens in cases who have encountered losses due to Ixtoc I?

Mr. Walsh. Mr. Chairman, if the legislation were enacted today, quite possibly some of the people who are being damaged at the present time could make a claim, yes.

If he applies to claims of damages discovered after the enactment, or if it is revisited upon them, they could make a claim.

Mr. Wyatt. If it is revisited upon them?

Mr. Walsh. Yes. The time frame is important, the time frame in which they discover damages, and if they show there was a cause and effect.

Mr. Wyatt. I understand if those damages were encountered between August 1, 1979, and today when the legislation is not enacted, the citizens could not go back to the comprehensive legislation to which you refer for compensation?

Mr. Walsh. No, they would have to proceed by common law to sue any of the responsible parties. As I understand it, the people in south Texas have sued Sedco.

Mr. Wyatt. Sued Sedco?

Mr. Walsh. Yes. They have sued all three corporations alleged to be involved: Pemex, Permargo and Sedco.

Mr. Wyatt. The Justice Department has also filed suit against Sedco. I believe in the State Department testimony you say there are two ways to go about correcting this, litigation and legislation.

In regard to litigation, particularly litigation on the part of the Justice Department which would be your attorney, have you asked the Justice Department to file suit against Permargo, Pemex, or the Goverment of Mexico?

Ms. Hoinkes. No, we have not, Mr. Wyatt. What you are dealing with in that question is a question of litigation strategy,and I say no, we have not, because the question has not arisen in precisely the way you formed the question.

The United States has filed suit against Sedco. That was necessitated by nature of the proceeding which Sedco itself initiated. We have obtained an order from the court in that case which reserves our right to file suits outside that proceeding under U.S. law against other defendants.

The question of whether or not the United States will file claims against Pemargo and/or Pemex has not been resolved. We are in discussions with the Department of Justice on that and depending upon their views as to the necessity of bringing those claims in terms of final resolution and obtaining redress for damages that the United States itself has suffered, we will be addressing that.

We are addressing that and will be reaching a decision, I presume, particularly with respect to Permargo in the near future.

Of course, suit being brought by the United States against Pemex does involve questions of international relations, foreign policy considerations, in a different context from that in which those questions arise with respect to suing Permargo which is a private corporation.

Mr. WYATT. So it is your opinion there are international considerations in terms of suing Pemex?

Ms. HOINKES. Yes.

Mr. WYATT. International implications vis a vis this country and the Government of Mexico?

Ms. HOINKES. There are indeed, but I say that without wanting to prejudge how we balance those interests and what we think those considerations would be and the decision which would then be reached.

Mr. WYATT. Obviously, this is of concern to a few of us along the gulf coast of Texas, whether they are resolved in favor of the overall people of the United States versus our relationship with Mexico, whether our interests are going to be subrogated to the people of the United States, and I think, in essence, that is what we are talking about.

Ms. HOINKES. Yes, but I call to your attention what we are discussing here and in our relation with Justice and the litigation.

We are dealing here with the U.S. claims, damages to U.S. resources and to areas of jurisdiction under U.S. control.

The interests of private litigants are somewhat different and I call to your attention, as Mr. Walsh just mentioned, that private claimants involved have indeed filed suit against Permargo and Pemex in addition to Sedco.

Mr. WYATT. In that regard, and I don't think we have anyone here, but following that line for just a moment, has it not been said by the Department of Justice and some others that we could have a severe problem in finding or getting compensation when citizens of the United States get a judgment against Permargo or certainly against Pemex?

Ms. HOINKES. Yes. I am not sure that I would put them in that order.

Mr. WYATT. I agree with you.

Pemex and then Permargo.

Ms. HOINKES. Indeed, those are very important considerations.

Mr. WYATT. But the truth of the matter is that we, in essence, in terms of the action of this administration up until this point in time, have subrogated the interests of the people of the Texas gulf coast to the people of the United States?

Ms. **Hoinkes.** I am not quite sure that I understand the thrust of your question.

Mr. **Wyatt.** We have not pursued, with all due diligence, where we could have gone or potentially could have gone with the Government of Mexico because of the international implication?

Ms. **Hoinkes.** One goes where one goes in international discussions where one can and in any endeavor such as that, there are two sides to the question.

As I indicated earlier, we certainly indicated very early on our desire to enter into discussions with Mexico. Those avenues I hope sincerely will remain open. But bearing in mind a very deep sensitivity on the part of Mexico, there is a pace with which they must necessarily proceed.

We will pursue all avenues available on a bilateral basis through diplomatic channels. None of that is foreclosed.

Mr. **Wyatt.** At this time, we have not subrogated the interests of the people on the gulf coast to the people in the United States as a whole?

Ms. **Hoinkes.** That is right.

Mr. **Wyatt.** Let me ask some questions in that regard, in regard to the cooperation of the Mexican Government, about international waters, and so forth, of the Coast Guard.

I believe you said in your statement, Admiral Caldwell:

> Southerly flowing currents are confining the oil to the lower Bay of Campeche. The extent and success of collection and capping efforts at the wellhead is unknown, but there has been some improvement.

Could you tell us what improvement, and how we know what improvement has occurred?

Admiral **Caldwell.** I was so vague because I cannot really be absolutely positive as to what has been accomplished at the wellhead.

However, with overflight we have made of the area, and I did relate that to surface oil, we don't really know precisely what is going on underneath the surface, but initially our concern was with the surface oil, and there is not the degree of surface oil in the northern part of the gulf that there was in the southern part of the gulf, which we attribute to the southerly currents or the currents to the south.

Have we been flying south of the well?

Admiral **Caldwell.** That is correct. We have been flying not only over, but down to the south of the area.

Mr. **Wyatt.** Admiral, as far as I know or have been told, and I feel like I followed this relatively closely, at no time did we ever make any assessment of the amount of oil coming from Ixtoc I by overflights?

Admiral **Caldwell.** No, sir. Don't misunderstand me.

I certainly did not intend to infer that we were talking about the number. If you are talking about the barrels of oil, I have no concept.

Initially, it was estimated as 30,000 barrels of oil per day. I don't know where that figure came from. We certainly had no way for estimating that.

I presume that professionals on the scene have some means of doing it. I am not an oilman either, but then it was with some of the efforts that were made by putting little plastic balls, golf balls, putting mud on things that they estimated this, and they cut it down to about 20,000 barrels a day, and they then put the sombrero over it which was reported relatively successful.

I heard through relatively reliable sources 2 or 3 days ago they had it capped and were ready to go. Then I heard this morning before I came over here that it was an erroneous comment, there is still a heavy flow of oil. I wouldn't want you to think that I have any concept about this. Initially, we had a pretty good count with our airborne oil surveillance system—AOSS—equipment that we have in our aircraft. We could get a pretty good estimate of how much oil is there. There is not as much oil on the surface in the Gulf of Mexico as there was a few weeks ago. That is what I am saying, and that is judging upon the evaluation of the data that we can get from our overflights.

Mr. **WYATT**. That is in terms of surface flights?

Admiral **CALDWELL**. Affirmative.

Mr. **WYATT**. In regard to what is on the surface, there were times, as I recall, that we did not even know the depth of the oil in the water.

Isn't that also true?

Admiral **CALDWELL**. It would be a logical statement. We did not know the depth of the oil in all spaces; no. Where we had it corralled, we knew how much basically we had floating on top of the water. On the free-floating oil, we could get an estimate. We couldn't get the exact amount.

Mr. **WYATT**. In regard to the amount of oil at the wellhead, I would like to ask any of the witnesses here at this time whether the American Government or any agency of the American Government has been allowed at the wellsite to make determinations as to how much oil has or was escaping from Ixtoc I?

Mr. Walsh, I think your agency would be primarily responsible for that, wouldn't they?

Wasn't it NOAA personnel who were invited to the well site?

Mr. **WALSH**. Not necessarily. We went to the well site earlier to take a look at the situation. Then we were involved along with the Coast Guard in regard to activating the response team; but in terms of the estimate of how much oil was coming out, then as now we have principally relied, I believe, on reports from Pemex through our State Department, I believe.

Mr. **WYATT**. Did we ask to make those determinations at the well site, Mr. Walsh?

Mr. **WALSH**. I am not aware that we did, no. NOAA did not.

Mr. **WYATT**. What did we ask for on our first trip to Mexico City?

Mr. **WALSH**. I probably should ask you to talk to John Robinson about that because he was the person who did it. He was sent down to judge the situation. He had some difficulty in finding out who is in charge and what was going on. After a couple of days and some frustration, he did come back, but got a general sense of the problem down there. Later, through aircraft overflight and satellite pictures, we detected that the oil was far more widespread.

Physical inspections at the site itself are not always, of course, the most reliable. The best thing to do is to have a gage on the well. It is hard to be on scene and calculate by the slick the size of its depth. We have operated on a rough estimate of about 3,000 barrels a day.

Mr. WYATT. Why? Because we were not concerned that the oil would impact on the beaches of the United States?

Mr. WALSH. Certainly not. It is just that getting a precise estimate is not the easiest thing in the world.

Mr. WYATT. Why?

Mr. WALSH. First of all, the conditions under which the well was situated, after this accident. As you remember from the testimony in Corpus Christi, Sedco said there was a break in the pipe, and that when the explosion occurred, part of the rig fell down the drill hole. Because of the turbulence and activity, there was no way anyone could get to the hole and find out what was happening.

We were using rough estimates. As far as we were concerned, in terms of what we did in Texas, we were most interested in how much oil was eventually going to get to Texas. We used surface sightings to determine this.

Mr. WYATT. Admiral Caldwell or Mr. Walsh, is it not known that in an oilspill you attempt to collect the oil at the site of the spill itself, and that that is the best way in which to contain and reduce the amount of oil?

Admiral CALDWELL. That is our opinion. We tried many weeks before we were accepted to come to Mexico. You said initially it was in international waters. The well is, I believe, in Mexican waters.

Mr. WYATT. Forty miles offshore.

Admiral CALDWELL. OK, I have been corrected, sir.

In answer to your question, has any positive means been tried to seek the information? It has been informally, on many occasions.

Mr. WYATT. It has never been given?

Admiral CALDWELL. No. Just 2 weeks ago a letter was mailed through diplomatic channels to Mr. Baptista who is the Pemex executive we have had most of our dealings with. It specifically points out our deep concern for what has happened and what might happen, and we asked them specifically to give us a clarification of the many conflicting reports we have on the sombrero incident and asked them for any reports and said that we are willing to travel to Mexico to discuss the situation.

We asked them specifically what is the flow coming out of well. We have no reply yet. That letter was released about 2 weeks ago.

Mr. WYATT. Did you happen to ask them about the success of their relief wells by any chance?

Admiral CALDWELL. The best information we have is that of the two wells, one of the wells did—this was the report that I mentioned earlier—one of the lead wells did interface with the initial wellhead and that they had it under control. Yet, the information that I got as of this morning said they do not. The difficulty we have is we are trying to answer your questions with solid answers, and I do not have solid answers. I do not know what is fact and what is opinion.

Mr. **Wyatt**. Could I go now to the State Department and get answers to some of those questions?

Ms. **Hoinkes**. Mr. Scully has some information.

Mr. **Scully**. I don't think we have had a formal communication from Mr. Baptista, who is a director within Pemex. We have had preliminary responses to our inquiries from Mexican sources conveyed to our Embassy, perhaps as an advance of the formal reply to the cochairman's letter. We received this over the weekend.

The information we have with regard to the relief wells is that the first relief well has, in fact, intersected the pool. It has not proven possible, according to information available to our Embassy to achieve static control for pumping water. They expect the second directional relief well will be through in approximately 10 days. It is the hope, expressed to our Embassy from Mexican officials, that by a combination of both relief wells it will be possible to achieve control of the Ixtoc I well.

We are not in a position to judge how optimistic or how solid that prediction is. It is the most recent information that has been passed to us. With regard to the flow, the current discharge from the well—again, we are not in a position to assess this in terms of accuracy. The estimates provided to our Embassy in Mexico City is that the current discharge is approximately 2,000 barrels a day from the well; that, in fact, the sombrero operation is partially successful, but there is a discharge and some oil continues to be discharged to the water.

Finally, the information passed to our Embassy by Mexican officials is that they are attempting to skim that discharge, but in the past week or so, there have been severe weather conditions which have not permitted skimming.

That is a synopsis of the information made available on a preliminary basis in response, I believe, to the letter from the cochairman of the national response team.

Mr. **Wyatt**. It is my understanding that in our hearing in Corpus Christi, we asked about the relief situation. Again, Mr. Scully, I realize how difficult your situation is, but we were told that we would have some of this information within a matter of weeks or days, that the relief well was drawing near and that hopefully the well could be capped within a period of weeks, whatever, and here it is now the first week in December.

Without casting aspersions on anyone, do we still have people at the well site that are looking at this situation?

Admiral **Caldwell**. No.

Mr. **Wyatt**. Were we asked to leave, or did we decide it was no longer important that we continue to monitor what went on and what happened at the well site?

Admiral **Caldwell**. Mr. Chairman, initially I think you will recall the Coast Guard people were hired by the Mexican Government. That is the only way we can operate. We have no provision for other than that. We are willing to go as long as they will pay for it.

Our strike force people were there—what was the number? We had six Coast Guard personnel on scene at Ixtoc I.

We started on June 3, trying to get down, but it was the middle of July or August, I forget the dates, and then in September they terminated our forces.

We did leave the commanding officer of the Pacific strike team there as a consultant for a few days, and then he was released.

Mr. WYATT. Since mid-September, we have had no one at the well site?

Admiral CALDWELL. About that time. That is affirmative.

The USGS did have observers to the setting of the sombrero. How long they were there, I don't know. To the best of my knowledge, there are no American observers on the site.

Mr. WYATT. A gentleman from the USGS testified before the Senate committee yesterday and made a statement that based upon the amount of gas he detected coming from the well and some other scientific means, it was his position that 50,000 barrels a day of oil were still escaping from Ixtoc I.

I just wonder if that is a minor difference, the difference between 2,000 and 50,000?

I understand the problem but apparently, at least one of our people who was there has some credentials from MIT. I won't say anything else there.

That alarms me, that that potential existed as much as 1 month ago, or 2 months ago.

Do we still have our skimmers at the well site?

Admiral CALDWELL. No, sir. We have no equipment there now.

Mr. WYATT. They were asked to leave, also?

Admiral CALDWELL. That is affirmative.

Mr. WYATT. The Mexican Government felt it was not necessary to pick oil that was escaping, I take it?

Admiral CALDWELL. I do not know what their reasons were.

Mr. WYATT. Are you aware they replaced our equipment with other equipment that was possibly better equipment?

Admiral CALDWELL. I am advised that the reason was that they wanted the equipment out of the area because they were preparing to accept the sombrero. They damaged the sombrero during the rough weather trying to get it down. That delayed that. I have no knowledge of why they decided the way they did.

Mr. WYATT. The State Department.

Mr. Scully.

Mr. SCULLY. There are a variety of experts who could come up with a variety of opinions as to the effectiveness of the measures taken.

It is a most frustrating situation for all concerned, as long as there is any discharge whatsoever. In placing this in context, the Government of Mexico, whether that was the best decision or not, early on made the decision to place its primary effort with regard to cleanup, and containment in seeking assistance through the commercial market, and they have gone to a variety of sources.

We feel that in the U.S Coast Guard we have the best technology and the best people in the world in this area. The Government of Mexico made its decision in a situation for which it felt responsible, in taking its action and went to the commercial market. We were able to offer them some assistance but, again, it was on a commercial basis.

Mexico was concerned that the Coast Guard be retained on a reimbursable basis and that they pay for all of the costs.

Now, I am not sure whether time will tell or not, but it was a decision made consciously by the Mexican Government. They have devoted enormous amounts of resources to bring this blowout under control.

I don't know if it was done in the most effective way.

The context of this response should be kept in mind. The whole situation has pointed up the very great need we have for a joint contingency plan with Mexico where we know, in advance, the responsibilities that would adhere to both Governments and how we would respond to any catastrophic or less than catastrophic incident.

Mr. WYATT. Ms. Hoinkes, did we protest to Mexico based upon our knowledge that the best place to extract or collect oil was at the well site and, because of that, we wanted to keep Coast Guard equipment at the well site so we could continue to pick up as much oil as possible?

Ms. HOINKES. I really don't think I am the appropriate person to answer; it is not within my knowledge. I believe the response team would be the appropriate people to indicate what our reaction had been on our proposed plan of action.

In dealing with this, we made it abundantly clear that we were ready, willing, and able on a continuing basis to provide whatever assistance was necessary.

Mr. WYATT. We made it abundantly clear in July that we were willing to work with the Mexican Government in anyway possible and yet it was, I think, late August and, in fact, after oil had begun to cross into the continental United States, that the Mexican Government finally requested some help from the Coast Guard in terms of oil at the spill site.

I am told they requested it in late July rather than late August, and you were able to respond to that within a period of how long?

Admiral CALDWELL. We had people and equipment down there by August. We had a stage at Corpus Christi sometime before that. By the time we got it down there to the well site and got it set up, it took about 2 weeks to get it down there.

Mr. WYATT. During that time, we had told the Mexican Government that we would be more than willing to assist them and that assistance was denied?

Ms. HOINKES. May I take advantage of the opportunity of your statement to make sure that something is clear on the record?

Mr. WYATT. Yes.

Ms. HOINKES. The spill took place in the areas of the high seas, but the activities involved are Continental Shelf activities over which the Mexicans exercise sovereign rights.

Mr. WYATT. Thank you.

Let us go, for a moment, to the contingency plan.

How long has the contingency plan been in Mexico City?

Ms. HOINKES. I think that Mr. Scully can give you the exact date of that.

Mr. SCULLY. As I understand it, discussions of the contingency plan began several years ago. We presented an original draft plan in 1978 and had informal discussions in April of 1979. At that point we were waiting reaction from the Mexican side to that draft and we were at the point, at the very time of the Ixtoc incident, of going back to the Mexicans with a followup request for the reaction.

One of the difficulties since the incident, since the well blew out, has been that the individuals who would be involved on the Mexican side, the equivalent our Coast Guard and EPA people had been involved in activities relating to the spill. We have not received yet a formal reaction in terms of that draft plan, but, as I think Ms. Hoinkes indicated, we expect to get back to the table with the Mexicans.

Mr. WYATT. Are you familiar with whether that plan addresses compensation for damages?

Mr. SCULLY. Cleanup costs, not compensation for damages.

Mr. WYATT. It would not benefit the people on the gulf coast had the contingency plan been there in terms of economic losses, et cetera?

Mr. SCULLY. In terms of liability, I will refer to counsel on my immediate left.

But there would have been a benefit in terms of reacting to the spill itself and in its containment. Certainly we would be better prepared to deal with actual, physical containment and cleanup.

With regard to liability, I will refer to my immediate left.

Ms. HOINKES. It contains nothing relating to liability.

Mr. WYATT. Can you furnish me with a copy of the contingency plan?

Ms. HOINKES. In that context, we will be glad to provide you with a copy of the Canadian contingency plan on which we based our discussions to date.

Mr. WYATT. I would like a copy of the Canadian plan.

I understand that during the negotiations you would be reluctant to give us the Mexican plan.

Ms. HOINKES. Yes.

Mr. WYATT. Please get us a copy for the record.

Ms. HOINKES. We will be glad to provide that.

[The following was received for the record:]

TREATIES AND OTHER INTERNATIONAL ACTS SERIES 7861

POLLUTION

Contingency Plans for Spills of Oil and Other Noxious Substances

Agreement Between the
UNITED STATES OF AMERICA
and CANADA

Effected by Exchange of Notes
Signed at Ottawa June 19, 1974

NOTE BY THE DEPARTMENT OF STATE

Pursuant to Public Law 89-497, approved July 8, 1966 (80 Stat. 271; 1 U.S.C. 113)—

> **". . . the Treaties and Other International Acts Series issued under the authority of the Secretary of State shall be competent evidence . . . of the treaties, international agreements other than treaties, and proclamations by the President of such treaties and international agreements other than treaties, as the case may be, therein contained, in all the courts of law and equity and of maritime jurisdiction, and in all the tribunals and public offices of the United States, and of the several States, without any further proof or authentication thereof."**

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CANADA

Pollution: Contingency Plans for Spills of Oil and Other Noxious Substances

Agreement effected by exchange of notes
Signed at Ottawa June 19, 1974;
Entered into force June 19, 1974.

The Canadian Secretary of State for External Affairs to the American Ambassador

DEPARTMENT OF EXTERNAL AFFAIRS | **MINISTÈRE DES AFFAIRES EXTÉRIEURES**

CANADA

No. FLA-362

OTTAWA, *June 19, 1974*

EXCELLENCY,

I have the honour to refer to the discussions between representatives of our Governments in Washington, D.C. and in Ottawa concerning the establishment of joint pollution contingency plans for waters of mutual interest, leading to the development of a joint Canada-United States Marine Contingency Plan for spills of oil and other noxious substances.

I have the honour to propose that the joint Canada-United States Marine Contingency Plan for spills of oil and other noxious substances, shall be promulgated by the Canadian Ministry of Transport and the United States Coast Guard and shall be maintained in force, as amended from time to time, to coordinate responses to significant pollution threats to the waters covered by the provisions of the Plan.

It would be the responsibility of the Canadian Ministry of Transport and the United States Coast Guard to administer and maintain the Plan as promulgated, or as amended from time to time.

Maintenance of the Plan and actions thereunder would be without prejudice to the positions of the Governments of the United States and of Canada, with respect to coastal state jurisdiction over pollution, and without prejudice to any other positions of the two Governments regarding the extent of territorial or maritime jurisdiction.

If the foregoing proposals are acceptable to the Government of the United States, I have the honour to propose that this Note, which is

equally authentic in English and French, and Your Excellency's reply shall constitute an Agreement between Canada and the United States which shall enter into force on the date of your reply.

Accept, Excellency, the renewed assurances of my highest consideration.

MITCHELL SHARP
Secretary of State
for External Affairs

His Excellency
The Honourable WILLIAM J. PORTER,
Ambassador of the United States of America,
Ottawa.

French Text of the Canadian Note

DEPARTMENT OF EXTERNAL
AFFAIRS

MINISTÈRE DES AFFAIRES
EXTÉRIEURES

CANADA

No FLA-362

OTTAWA, *le 19 juin 1974*

EXCELLENCE,

J'ai l'honneur de me référer aux discussions qui ont eu lieu entre les représentants de nos gouvernements à Washington D.C. et à Ottawa concernant l'établissement de plans d'urgence conjoints en cas de pollution des eaux pour lesquelles les deux pays ont un intérêt commun et qui ont amené l'élaboration d'un Plan d'urgence conjoint canado-américain en cas de pollution des eaux par des hydrocarbures et d'autres substances nocives.

J'ai l'honneur de proposer que le Plan d'urgence conjoint canado-américain en cas de pollution des eaux par des hydrocarbures et d'autres substances nocives soit promulgué par le ministère canadien des Transports et par la Garde côtière des Etats-Unis et qu'il soit maintenu en vigueur et modifié de temps à autre pour coordonner les mesures à prendre face aux menaces réelles de pollution des eaux visées par les stipulations du Plan.

Le ministère canadien des Transports et la Garde côtière des Etats-Unis seront chargés d'administrer le Plan et de la maintenir en vigueur tel que promulgué ou tel que modifié de temps à autre.

Le maintien de Plan et des mesures qui y sont prévues devra se faire sans préjudice des positions déjà adoptées par les gouvernements des Etats-Unis et du Canada relativement à la juridiction des Etats riverains en matière de pollution ni de toute autre position des deux gouvernements concernant l'étendue de leur juridiction territoriale ou maritime.

3

Si les propositions qui précèdent agréent au Gouvernement des Etats-Unis, j'ai l'honneur de proposer que la présente Note, dont les versions anglaise et française font également foi, et la réponse de votre Excellence constituent, entre le Canada et les Etats-Unis, un Accord qui entrera en vigueur à la date de votre réponse.

Veuillez agréer, Excellence, les assurances de ma très haute considération.

Le secrétaire d'Etat aux
Affaires extérieures,

MITCHELL SHARP

Son Excellence l'honorable WILLIAM J. PORTER,
Ambassadeur des Etats-Unis d'Amérique,
Ottawa.

The American Ambassador to the Canadian Secretary of State for External Affairs

EMBASSY OF THE
UNITED STATES OF AMERICA

No. 106

OTTAWA, *June 19, 1974*

SIR:

I have the honor to acknowledge receipt of your note No. FLA-302 of June 19, 1974 which reads as follows:

"EXCELLENCY,

I have the honour to refer to the discussions between representatives of our Governments in Washington, D.C. and in Ottawa concerning the establishment of joint pollution contingency plans for waters of mutual interest, leading to the development of a joint Canada-United States Marine Contingency Plan for spills of oil and other noxious substances.

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If the foregoing proposals are acceptacle to the Government of the United States, I have the honour to propose that this Note, which is equally authentic in English and French, and Your Excellency's reply shall constitute an Agreement between Canada and the United States which shall enter into force on the date of your reply.

Accept, Excellency, the renewed assurances of my highest consideration."

I have the honor to inform you that the foregoing proposals are acceptable to the Government of the United States of America and to confirm that your Note, which is equally authentic in English and French, and this reply shall constitute an Agreement between our two Governments which shall enter into force on the date of this reply.

Accept, Sir, the renewed assurances of my highest consideration.

William J. Porter

The Honourable
Mitchell Sharp, P.C.,
Secretary of State
for External Affairs,
Ottawa.

U.S. GOVERNMENT PRINTING OFFICE: 1974

JOINT CANADA — UNITED STATES MARINE POLLUTION CONTINGENCY PLAN FOR SPILLS OF OIL AND OTHER NOXIOUS SUBSTANCES

LETTER OF PROMULGATION

The Joint Canada-United States Marine Pollution Contingency Plan for Spills of Oil and Other Noxious Substances is intended to supplement and to adapt internationally other approved national, provincial, state and local pollution contingency plans. Developed by a United States-Canada Working Group, this Plan provides response mechanisms for any pollution incident which constitutes a significant threat to the waters and coastal areas of both Parties.

The Parties are aware that the public must play a considerable part in the warning and reporting systems which are contained within the Plan and they agree that these methods should be brought to the attention of the public at periodic intervals. In addition, the Parties recognize that certain elements of both public and private sectors can contribute substantially to the orderly and successful implementation of the Plan and therefore agree that it should be accorded the widest distribution.

The Plan is approved for implementation and operations. Annexes covering specific geographic areas may be added and approved as required by agreement between the Parties.

For the United States Coast Guard

Date June 20, 1974

For the Ministry of Transport

Date June 20, 1974

AMENDMENTS

Amendment Numbers	Date of insertion	Initials

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ABSTRACT OF THE PLAN

1. The Plan

The Joint Canada-United States Marine Pollution Contingency Plan for Spills of Oil and Other Noxious Substances covering specific geographic areas where there may be a significant threat to the waters and coastal areas of both Parties has been approved for implementation.

2. The Purpose

The purpose of the Plan is to provide for coordinated and integrated response to pollution incidents by federal, state, provincial and regional plans of both Parties.

3. The Objectives

The objectives of this Plan are:

(a) to develop the appropriate measures of preparedness and systems for the discovery and reporting of a pollution incident within the areas covered by the various Annexes to the Plan;

(b) to institute prompt measures to restrict the further spread of oil or other noxious substance; and

(c) to provide adequate resources to respond to a pollution incident.

A pollution incident is defined as a spill or the threat of an imminent spill of oil or any other noxious substance of such magnitude or significance as to require an immediate response to contain, clean-up and/or dispose of the substance in order to remove the threat to or to minimize the adverse effect on the public health or welfare.

4. The Procedures

The Plan provides for pre-designated On-Scene Commanders and Deputy On-Scene Commanders who will coordinate the response activities to control a spill and for Joint Response Teams to provide advice and assistance to the On-Scene Commanders. It establishes alerting and notification procedures, command structure, post-clean-up requirements and arrangements for assuming the responsibility for the cost of operations.

5. Responsibility

The implementation and maintenance of the Plan is the joint responsibility of the United States Coast Guard, Department of Transportation and the Canadian Marine Transportation Administration, Ministry of Transport. The two aforementioned organizations are the lead agencies and shall be assisted by other national agencies as appropriate and when required. The two lead agencies are empowered to amend jointly the Plan as necessary subject to the proviso that any amendment shall be consistent with the purpose and objectives as agreed to by both Parties in Annex 8 of the Canada-US Agreement on Great Lakes Water Quality.

100 INTRODUCTION

101 Background

101.1 The need for a joint U.S. — Canada pollution contingency plan for the Great Lakes was pointed out by the International Joint Commission (IJC) in their "Special Report on Potential Oil Pollution, Eutrophication, and Pollution from Watercraft", dated April, 1970. This report recommended that "the two Governments under the general aegis of the International Joint Commission arrange for the development of a coordinated international contingency plan so that both countries may quickly and effectively respond to major accidental spills of oil or other hazardous materials in the boundary waters of the Great Lakes system".

101.2 At the June 23rd, 1970 meeting of ministers in Ottawa, a U.S. — Canada Joint Working Group on Great Lakes Pollution was created to coordinate various U.S. — Canada pollution control programs. The original Plan and Annex One were developed by a contingency planning sub-group with representatives from Canada and the United States.

101.3 The development of this Plan was consistent with the intent of the IJC report on Great Lakes pollution dated December, 1970, which recommends, among other things, that "the Governments of Canada and the United States enter into agreement to develop coordinated international contingency plans so that both countries may quickly and effectively respond to major accidental spills of oils, hazardous or radioactive materials in the boundary waters of the Great Lakes System". This Plan was incorporated into the Canada-US agreement on Great Lakes Water Quality which was signed by the Prime Minister and the President on 15 April, 1972.

101.4 Following upon introduction of an international contingency plan for the Great Lakes, it was agreed that there was a need to establish joint contingency plans for waters of mutual interest where the use of combined resources would improve the posture and capability of each nation.

102 Purpose and Objectives

102.1 This Plan provides for coordinated and integrated responses to pollution incidents in the waters designated in the Annexes and their appendices to the plan by responsible federal, state and local agencies in the U.S. and federal, provincial and local agencies in Canada. It is intended to augment the national, state, provincial and regional plans of the two Parties and therefore addresses itself primarily to international matters not covered by these plans.

102.2 The objectives of this Plan are:

(a) to develop appropriate preparedness measures and effective systems for discovering and reporting the existence of a pollution incident within the areas covered by various Annexes to the Plan;

(b) to institute prompt measures to restrict the further spread of oil or to minimize the hazard posed by a noxious substance; and

(c) to provide adequate resources to respond to a pollution incident.

103 Scope

103.1 This Plan applies to the areas specified in its Annexes.

103.2 This Plan and its Annexes are applicable whenever a pollution incident may affect both Parties or, although only directly affecting one Party, is of such a magnitude as to justify a call on the other Party for assistance. It is intended to organize the activites of all the responsible authorities in each country, and to provide a command structure and an established method of operation for the forces engaged in dealing with any one incident.

104 Abbreviations

104.1 Terms common to Canada/U.S. Contingency Plans

CANUSLAK	—	Joint Canada-United States Pollution Contingency Plan — Great Lakes
CANUSLANT	—	Joint Canada-United States Pollution Contingency Plan — Atlantic Coast
CANUSPAC	—	Joint Canada-United States Pollution Contingency Plan — Pacific Coast
DOSC	—	Deputy On-Scene Commander
JRC	—	Joint Response Centre
JRT	—	Joint Response Team
OSC	—	On-Scene Commander
SITREP	—	Pollution Incident Situation Report

104.2 **Federal Canadian Agencies and Terms**

MOT — Ministry of Transport
CCIW — Canada Centre for Inland Waters, Burlington, Ont.
CCG — Canadian Coast Guard
DOE — Department of the Environment
DND — Department of National Defence
DNHW — Department of National Health and Welfare
EA — Department of External Affairs
EMR — Department of Energy, Mines and Resources
EPS — Environmental Protection Service (DOE)
EMO — Emergency Measures Organization (DND)
IAND — Department of Indian Affairs and Northern Development

104.3 **Federal U.S. Agencies and Terms**

CEQ — Council on Environmental Quality
Commerce — Department of Commerce
Corps — U.S. Army Corps of Engineers
DHEW — Department of Health, Education and Welfare
DOD — Department of Defense
DOI — Department of Interior
DOT — Department of Transportation
EPA — Environmental Protection Agency
Justice — Department of Justice
MarAd — Maritime Administration
NOAA — National Oceanic and Atmospheric Administration
State — Department of State
USAF — U.S. Air Force
USCG — U.S. Coast Guard
USGS — U.S. Geological Survey
USN — U.S. Navy

Operational Title Abbreviations

NRC — National Response Center
NRT — National Response Team
RRC — Regional Response Center
RRT — Regional Response Team

State and Provincial Agencies are contained in the respective Annexes to this Plan.

105 **Definitions**

105.1 Pollution Incident: A spill, or the imminent threat of a spill, of oil or any other noxious substance of such a magnitude or significance as to require an immediate response to contain, clean-up, and/or dispose of the substance in order to remove the threat to or to minimize the adverse effect on the public health or welfare.

105.2 Oil: Oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, and oil mixed with wastes other than dredged spoil.

105.3 Major Spill: The result of a discharge of oil or any other noxious substance of such a size, character or intensity that it poses a threat to public health or welfare over an area within and beyond the immediate locality of the spill.

105.4 Medium Spill: The result of a discharge of oil or any other noxious substance of such size that it poses a threat to the public health and/or welfare in the immediate locality of the spill.

105.5 Minor Spill: The result of a discharge of oil or other noxious substance the consequences of which will only be minor and which will not normally involve invocation of this Plan.

105.6 Public Health or Welfare: Includes the consideration of all factors affecting the health and welfare of man, including but not limited to, fish, shellfish, wildlife, and public and private property, shorelines and beaches.

105.7 Noxious Substance: Any substance which, if introduced into the water environment, could result in deleterious effects such as harm to living resources, hazards to human health, hindrances to marine activities including fishing, impairment of the quality of water or littoral regions and reduction of amenities.

105.8 Parties: The Parties referred to in the text of this Plan are the Governments of the United States and Canada.

105.9 TOXINTOCSIN: The message warning of a pollution incident within the scope of this Plan.

106 Standard Terms and Conversion Tables

106.1 Conversion Tables

Knowing	Multiply by factor below to obtain Gallon U.S.	Barrel U.S.	Gallon Imperial	Cubic Feet	Litre
Gallon (U.S.)	1.000	0.023810	0.83268	0.13368	3.7853
Barrel	42.0*	1.000	34.9726	5.6146	158.934
Gallon (Imp)	1.2009	0.02859	1.000	0.1605	4.546
Cubic Feet	7.4805	0.1781	6.2288	1.000	28.316
Litre	0.2641	0.00629	0.2199	0.03532	1.000

	Pound	Ton (Short)	Ton (Long)	Ton (Metric)
Pound	1.00	0.00050	0.000446	0.00045359
Ton (Short)	2000.0*	1.0000	0.89286	0.90718
Ton (Long)	2240.0*	1.120	1.0000	1.0100
Ton (Metric)	2204.6	1.1023	0.98421	1.000

One Ton (Metric) equals 1000 Kilograms.

Conversions marked (*) are exact by definition.

106.2 Approximate Conversions

Material	Barrels per Ton (Long)
Crude Oils	6.7 – 8.1
Aviation Gasolines	8.3 – 9.2
Motor Gasolines	8.2 – 9.1
Kerosenes	7.7 – 8.3
Gas Oils	7.2 – 7.9
Diesel Oils	7.0 – 7.9
Lubricating Oils	6.8 – 7.6
Fuel Oils	6.6 – 7.0
Asphaltic bitumens	5.9 – 6.5

(As a general rule-of-thumb approximation, use 7 barrels, or 300 U.S. gallons per long ton of oil)

106.3 **Standard Terms for High Viscosity Oil Films and Descriptive Appearance of High Viscosity Oil on Water**

Standard Term	Approx. Film 10^{-6} ins.	Thickness 10^{-6} metres	Approximate Quantity of oil in film Gallons per square mile	Litres per sq. km.	Appearance
Barely Visible	1.5	0.04	25	44	Barely visible under favourable light conditions
Silvery	3	0.08	50	88	Visible as a silvery sheen on water surface
Slightly Coloured	6	0.15	100	176	First trace of colour may be observed
Brightly Coloured	12	0.3	200	351	Bright bands of colour are visible
Dull	40	1	666	1168	Colours begin to turn dull brown
Dark	80	2	1332	2337	Colours are much darker brown or black

Note: Each one-inch thickness of oil equals 5.61 gallons per square yard or 17,378,909 U.S. gallons per square mile.

200 JOINT POLICY AND RESPONSIBILITY

201 Joint Policy

201.1 The appropriate U.S. and Canadian agencies will cooperate as fully as possible to respond expeditiously to a pollution incident that affects or threatens to affect both Parties. Actions taken pursuant to the plan shall be consistent with the statutory authorities, operational requirements and other obligations of each of these Agencies.

201.2 It is recognized that good across — the — border communications between all levels of government are vital to the successful implementation of this Plan. Any pollution incident that presents a potential threat to the other Party shall be reported promptly to the appropriate agency of that Party in accordance with the provisions of this Plan.

201.3 In a response situation which falls within the scope of this Plan, the designated agencies shall make available any resources they may have which could be used for joint response operations, subject to the exigencies in their national area. In addition, each Party shall have available a mechanism whereby the necessary resources from the public and private sectors may be brought to bear to achieve a successful outcome to a joint response operation.

201.4 In response actions, the use of dispersants, sinking agents or other chemicals is not authorized except when their use will, in the judgement of the On-Scene Commander (OSC):

(a) prevent or substantially reduce the hazard to human life or limb or unacceptable hazard of fire to property;

(b) prevent or reduce a threat to a major population segment of a vulnerable species of water fowl; or

(c) appears to be the most effective means by which to reduce the total impact of a spill, in which case only those materials authorized by EPA or DOE are to be used.

202 Special Arrangements for Funding and Entry

202.1 Unless otherwise agreed, the following funding arrangements shall apply. When a pollution incident occurs in the internal waters of a party, or its territorial sea and contiguous zone waters up to twelve miles seaward of the baseline from which its territorial sea is measured, that Party shall bear the costs of:

(a) response operations by its own government forces;

(b) such private resources as are properly arranged for by the OSC and are approved by such Party;

and (c) response operations by the Government forces of the other Party in the first Party's internal waters and in the first Party's territorial sea and contiguous zone waters up to twelve miles seaward of the baseline from which its territorial sea is measured.

In the case of the Great Lakes, the provisions of Annex 8 of the Great Lakes Water Quality Agreement will apply.

In the case of pollution arising from seabed activities, the cost of response operations shall be borne by the Party having jurisdiction over the seabed activities involved.

In all other cases subject to this Plan, each Party will bear the costs of its own response operations.

202.2 The recovery of costs expended for response activities shall be considered on a case by case basis. This Plan is not related to and shall not prejudice the resolution of any dispute which may arise respecting liability and compensation for damages resulting from any pollution incident wherever it may occur.

202.3 When this Plan and its Annexes are invoked, special customs and immigration clearances will be granted by each Party for response resources including personnel and equipment.

203 Mechanism for Invoking the Plan

203.1 The Plan may be invoked by the responsible Canadian or U.S. official (see section 302.2) in the event of a pollution incident which originates within the area of responsibility of his on-scene commander and which is accompanied by a substantial threat of the spread of a pollutant into the area of responsibility of the other Party's OSC, or where such spreading has already occurred, or by the responsible Canadian or U.S. official (see section 302.2) in the event of such a pollution incident originating within the area of responsibility of the other Party's OSC.

203.2 The Plan may be invoked in pollution incidents where no spread of pollutants into the area of responsibility of the other Party's OSC has occurred or is threatened, but where the magnitude of the incident, or other factors, makes a joint response desirable. In such cases the agreement of the responsible officials of both Parties is required.

204 U.S. Federal Agencies' Responsibilities

204.1 Various U.S. Federal Agencies have responsibilities established by Statute, Executive Order or Presidential Directive which may bear on the joint response to a polluting spill. Responsibilities and authorities of these several Agencies relevant to the control of pollution incidents are further detailed in the National Contingency Plan.

205 Federal Canadian Agencies' Responsibilities

205.1 The Ministry of Transport is the Canadian Agency responsible for the operation, administration and maintenance of this Plan. Within the Ministry, a Marine Emergency Office has been established in Headquarters and the regions. If the incident warrants, this Office will provide the OSC and the Canadian chairman of the J.R.T. as well as M.O.T.'s spill clean-up and control equipment.

205.2 The Department of the Environment, through its Environmental Protection Service, will provide technical advice to the JRT relative to ambient water quality and water pollution control techniques, marine environmental data including living resources, meteorological, hydrological and oceanographic conditions.

205.3 The Department of Energy, Mines and Resources, through its Resource Management and Conservation Branch, has statutory responsiblity for the federal interest in the mineral resources off Canada's coasts. This responsibility includes the administration and regulatory control over seabed activities. Other agencies in the Department will provide the JRT with expert knowledge in the earth science fields.

205.4 The Department of National Defence, through its Commands and subject to established priorities and its operational requirements, may provide such resources and facilities as are available.

205.5 The responsibilities of the several provincial and state agencies are contained in the appropriate Annexes.

300 PLANNING AND RESPONSE ELEMENTS

301 Joint Response Centres

301.1 The Joint Response Centre (JRC) will be established in the facilities of the Party providing the OSC and will ordinarily be shifted to the facilities of the other Party if the OSC is shifted to that Party.

302 Joint Response Teams

302.1 The Joint Response Teams (JRT) shall consist of representatives of certain agencies of the U.S. and Canada. They function as emergency teams and will be activated by agreement in the event of a pollution incident occurring within the areas encompassed by this Plan and its Annexes. A JRT may be activated for any other location which may be designated. .

302.2 The United States Coast Guard member of a JRT will act as U.S. chairman when the JRC is established in the U.S.A., and the Canadian Regional Coordinator under the extant Federal Contingency Plan will act as Canadian chairman of the team when a JRC is established in Canada. The chairman of either Party may invoke the Plan (see section 203).

302.3 The functions of a JRT include planning, preparedness and response and are outlined below. These are not exclusive.

(a) Develop procedures to promote a coordinated response by all agencies to pollution incidents.

(b) Review post-incident reports from the OSC's on the handling of pollution incidents for the purpose of analyzing response actions and recommending needed improvements in the contingency plans.

(c) Forward to the respective federal, state and provincial authorities relevant reports and recommendations including OSC's post-incident reports, JRT debriefing reports and recommendations concerning amendments to the Plan or the Annexes.

302.4 Some measure of response functions will be performed each time the Plan is invoked. The degree of response will be subject to the demands of each particular situation. The specific response functions and responsibilities of the JRT are outlined below.

(a) Monitor incoming reports and evaluate the possible impact of reported pollution incidents. To be at all times fully aware of the proposed actions of the OSC.

(b) Coordinate the actions of the various agencies in supplying the necessary resources and assistance to the OSC. Assistance will normally be obtained through the appropriate member of a JRT.

(c) Provide advice as required to the OSC. The JRT does not have operational control over the OSC.

(d) May arrange the deployment of personnel to monitor the handling of the spill.

(e) Recruit other agencies, industrial or scientific groups to play their appropriate parts in support actions by acting through the JRT or OSC.

(f) Determine when a shift of OSC from one party to the other is indicated by the circumstances of the spill.

(g) Provide a focal point for public information.

(h) Coordinate the reporting on the status of the pollution incident to the respective national authorities.

302.5 The national chairman of the several JRT's shall make provision for periodic meetings of a JRT to discuss mutual problems; and, as appropriate, for the conduct of exercises relating to this Plan.

303 On-Scene Commander

303.1 The coordination and direction of the joint pollution control efforts at the scene of a pollution incident shall be achieved through an official appointed as the On-Scene Commander (OSC). The OSC is an agent designated in each of the Annexes to the Plan for the appropriate area in which a pollution incident may occur. His responsibility will continue until a shift in OSC's between the Parties is agreed upon by the JRT in accordance with section 302.4(f) above, or until a shift in OSC's within the jurisdiction of one Party is directed by the chairman of the JRT or other national authority.

303.2 In the event of a pollution incident, the first official arriving at the site shall assume coordination of activities under the Plan until the designated OSC becomes available to take charge of the operation.

303.3 The OSC shall determine the pertinent facts about a particular pollution incident, including the nature, amount, and location of material spilled, probable direction and time of travel of the material, resources available and needed and the installations which may be affected. He shall establish the priorities for protection.

303.4 The OSC shall initiate and direct, as required, Phase II and Phase III operations as hereinafter described.

303.5 The OSC shall call upon and direct the deployment of available resources to initiate and continue containment, countermeasures, clean-up, and disposal functions.

303.6 In carrying out this Plan the OSC is to maintain an up-to-date and accurate information flow to the JRT to ensure the maximum effectiveness of the joint effort in protecting the natural resources and environment from pollution damage. The necessary direct liaison between personnel at all levels in the agencies of both countries is essential to both satisfactory planning and operations.

303.7 Upon instructions from a JRT, an OSC, assisted by the Deputy On-Scene Commander (DOSC), is to submit to that team such reports and recommendations on any one incident, as a JRT may deem to be necessary.

304 Deputy On-Scene Commander

304.1 The Deputy On Scene Commander shall be the appropriate designated OSC from the Party which is not providing the OSC. He shall act as the OSC's direct liaison with the agencies of the Party which he, the DOSC, represents. He shall assist the OSC and shall control his own Party's response resources to comply with the planned tactics of the OSC.

400 RESPONSE OPERATIONS

400.1 The actions which are taken to respond to a pollution incident separate into four relatively distinct phases. However, elements of a phase or an entire phase may take place concurrently with one or more other phases.

Phase I —Discovery and Alarm
Phase II —Evaluation and Plan Invocation
Phase III —Containment and Countermeasures
Phase IV —Clean-up and Disposal

401 Phase I — Discovery and Alarm

401.1 The discovery of a pollution incident may be made through the normal planned surveillance activities, through the observations of agencies of the various levels of government, by those who caused the spill or by the alertness and concern of the general public.

401.2 The severity of the spill, which in itself is conditioned by the nature and the quantity of the pollutant and the locality, will determine the level of response required and whether or not there is a need to invoke the Plan.

401.3 The first agency, having a responsibility under the Plan, to be made aware of a pollution incident shall notify the appropriate designated OSC immediately. If the pollution incident threatens to affect the area of responsibility of the other Party's O.S.C. a suitable and speedy warning is to be given in accordance with the procedures established in the Annexes.

402 Phase II — Evaluation and Plan Invocation

402.1 If it is the evaluation of the OSC receiving the first warning that the pollution incident will possibly affect the other Party and/or is more than a minor spill, he shall:

(a) make a recommendation to his own national chairman of the JRT on whether to invoke the Plan;
(b) formulate plans to deal with the situation; and
(c) initiate Phase III and IV actions as appropriate.

The chairman may invoke the Plan as provided in section 203. The specific methods for warning the other Party and invoking the Plan are contained in each Annex.

403 Phase III — Containment and Countermeasures

403.1 Containment is any measure, whether physical or chemical, which is taken to control or to restrict the spread of a pollutant.

403.2 Countermeasures embrace those activities, other than containment, which are implemented to reduce the impact and the effect of a pollutant on the public health and welfare.

404 Phase IV — Clean-up and Disposal

404.1 This phase of the operation is directed towards reducing the impact of a spill as much as possible. It will include the removal of the pollutant from the water and shoreline using available technology.

404.2 Pollutants which are recovered as a result of clean-up actions shall be disposed of in accordance with national procedures so as to preclude the possibility of further or continuing environmental damage.

500 PUBLIC INFORMATION

501 Introduction

501.1 When a pollution incident occurs, the public must be provided with timely and accurate information on the nature of the incident and the steps which are being taken to cope with the problem. This policy is followed to obtain understanding from the public, to ensure cooperation from all interested parties and to reduce the possibility of the spread of concern or alarm through misinformation.

502 JRC News Office

502.1 When the Plan is invoked, the chairman will make the appropriate arrangement to assign, from the resources of each Party, a professional public information officer who will establish and direct a News Office at the activated JRC. Each of these co-directors of the JRC News Office shall maintain liaison with the interested parties in his own country, including the press, government press offices and concerned industries. All news releases involving policy considerations shall be cleared by or through the chairman and such other representatives of the Parties as the chairmen deem necessary. SITREPS and other factual releases will not normally require formal clearance by the chairmen. The co-directors of the JRC News Office should attend the meetings of the JRT and should be consulted on public reactions. The Party providing the site for the JRC shall supply adequate space, equipment, and manpower for the JRC News Office.

503 On-Scene News Office

503.1 When the plan is invoked, the chairmen will appoint to the staff of the OSC and DOSC a professional public information officer from the resources of each Party to establish and direct a news office near the headquarters of the OSC. These co-directors of the On-Scene News Office shall work under the OSC and DOSC and shall be responsible for preparing and clearing joint news releases, keeping the JRT advised of their activities, maintaining an account of events and advising the OSC and DOSC on public reactions. SITREPS and other factual releases of action may be cleared by the OSC and DOSC, but releases involving major policy considerations must be forwarded to the JRT for clearance.

504 Interim Public Information Arrangements

504.1 In the period following a spill and before the Plan is invoked the information activities shall be directed by the public information personnel of the agency which provides the designated OSC. These activities shall be conducted in accordance with the information policies of that agency.

600 SURVEILLANCE

601 Operational Requirements

601.1 Within the context of this Plan the operational requirements for surveillance will depend on the circumstances surrounding each pollution incident. Evaluation factors will include the type and quantity of material, location, apparent direction and speed of movement, proximity to critical water use areas and the availability of response resources. The decision to provide surveillance will be qualified by the type, extent and duration of the surveillance coverage needed, which will be re-evaluated as the situation progresses.

601.2 The initial function of surveillance is to identify whether or not a pollution incident exists. In some situations this may be self-evident, and certain situations may be deemed to be a pollution incident before initial surveillance resources are available. The next function of surveillance activity is assessment of the actual threat. These functions provide the OSC with information about the degree of further response activity which is required, including the need for additional surveillance.

601.3 The degree and type of threat during any particular pollution incident will condition the method and type of surveillance which is required and whether it will be continuous or periodical.

700 ADMINISTRATION

701 **Custodians**

701.1 The custodians for this Plan and Annexes and any amendments thereto are: for the United States — the Commandant, United States Coast Guard, and, for Canada — the Administrator, Canadian Marine Transportation Administration, Ministry of Transport.

702 **Amendments**

702.1 Amendments to the Plan and Annexes may be made by mutual agreement of the custodians and shall be disseminated pursuant to an agreed procedure.

JOINT CANADA — UNITED STATES
MARINE POLLUTION CONTINGENCY PLAN
FOR SPILLS OF OIL AND OTHER
NOXIOUS SUBSTANCES

ANNEX ONE
GREAT LAKES
SHORT TITLE
CANUSLAK CONTINGENCY PLAN

ANNEX ONE

All numbered sections in this Annex are further identified by the letter G for "Great Lakes".

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G 100 SCOPE

G 101 Responsibility Areas and Funding

G 101.1 This Annex applies to the internal waters of each Party on the Great Lakes.

G 101.2 The International Boundary marks the area of waters of the Great Lakes for which each Party's OSC is responsible for the purpose of the Plan and this Annex.

G 101.3 A pollution incident, as defined in 105.1 of the Plan, from any source including vessels, refining, transfer or storage facilities, or lakebed activity is covered by this Annex.

G 101.4 A pollution incident which although not a threat to the waters of both Parties nevertheless is of such a magnitude as to warrant a plea for assistance and/or the loan of resources is provided for, with the proviso that the Party seeking the aid shall pay all the costs of the other Party unless alternative arrangements are made.

G 101.5 Response operations shall be funded in accordance with section 202 of the Plan

G 102 Involved Agencies and Designations

G 102.1 **Canada**

G 102.1.1 **Federal Agencies**

Ministry of Transport — Regional Director, Marine Services, Central (RDMS Central)

Department of the Environment — Director, Canada Centre for Inland Waters (CCIW Burlington)
Regional Director, Environmental Protection Service (Toronto)

Department of National Defence — Commander, Central Region (Trenton)

St. Lawrence Seaway Authority — Director of Operations

G 102.1.2 **Ontario Provincial Agencies**

Ministry of the Environment — Contingency Planning Coordinator

Ministry of Natural Resources — Director, Fish and Wildlife Branch

Other Agencies — as designated in the Province of Ontario Contingency Plan

G 102.1.3 The responsibility for protection of the waters of the Great Lakes is shared between the governments of Canada and Ontario. The federal responsibility will be borne for marine contingencies by the extant Federal Contingency Plan as promulgated for the Great Lakes Region. The Federal Contingency Plan provides for the coordinated response by all the appropriate federal departments. The responsibility of the Province of Ontario is borne by the Ontario Ministry of the Environment (Environment Ontario) in cooperation with other Ontario agencies.

G 102.1.4 The Ontario Ministry of the Environment is responsible for development, administration and implementation of the Province of Ontario Contingency Plan, for liaison with local area groups in the development of their contingency plans to ensure their compatibility with the provincial, federal and international contingency plans. Environment Ontario will coordinate under the JRT all actions relating to the interests of the other Ontario Government departments.

G 102.1.5 Under the Ontario Contingency Plan the Ontario Operations Centre (OOC) receives reports of oil and other noxious material spills within the Province. The OOC will provide the initial communications with the spill site, and will perform other functions as described in section G 204.1.5.

G 102.2 United States

G 102.2.1 **Federal Agencies**

Department of the Interior

Department of Transportation — USCG, Ninth Coast Guard District

Department of Commerce — National Oceanic and Atmospheric Administration (NOAA)
Maritime Administration (MarAd)

Department of Defense — U.S. Army Corps of Engineers — Division and District Offices
— First and Fifth United States Armies
— Third and Ninth U.S. Naval Districts
— Fifth U.S Air Force Reserve Region

Department of Health, Education and Welfare — Region V

Environmental Protection Agency — Region V

G 102.2.2 State Agencies

State of Minnesota — State Water Pollution Control Agency

State of Michigan — State Water Resources Commission

State of Ohio — State Department of Health

State of New York — Department of Environmental Conservation

State of Pennsylvania — Department of Environmental Resources

State of Wisconsin — Department of Environmental Protection

G 200 REPORTS AND COMMUNICATIONS

G 201 Rapid Alerting System

G 201.1 Any potential pollution threat to the other Party shall be reported to the appropriate agency of that Party without delay. Speed of reaction is vital to the successful outcome of an operation.

G 201.2 While it may take some assessment to decide whether or not to invoke the Plan, a warning that the Plan may be invoked should be given. This warning will not activate the Plan. It will, however, permit immediate preparation for the possibility of its invocation. The warning message shall be in the following format:

DTG

FM (sender)

TO (action addressee)

INFO (information addressees)

BT

UNCLAS

CANUSLAK TOXINTOCSIN

1. GEOGRAPHICAL POSITION
2. ANY OTHER DETAILS
3. ACKNOWLEDGE

BT

Such a message will normally be originated by the Regional Coordinator, Great Lakes Region for Canada or by the Commander, Ninth Coast Guard District for the United States and must always be acknowledged by the action addressee.

G 201.3 Invocation

This Plan shall be activated only by formal invocation. This will normally be done by message from the Regional Director, Marine Services, Central Region for Canada or from the Commander, Ninth Coast Guard District for the United States. This message should contain at least the following information:

DTG

FM (sender)

TO (action addressee)

INFO (information addressees)

BT
UNCLAS

TOXIN

CANUSLAK CONTINGENCY PLAN INVOKED AT (time GMT)

OSC (name)

HQ ESTABLISHED AT (name and telephone no.)

ACKNOWLEDGE

BT

In the acknowlegement message to the above, the receiving party shall report the name of the DOSC appointed and his ETA at the locality of the Headquarters established by the original message of invocation.

G 202 Situation Report Requirements (TOXIN SITREP)

G 202.1 Up to date information on a spill which has justified joint response activity is essential to the effective management and outcome of an incident. This information should be submitted by the nominated OSC to the JRT on the format shown below. TOXIN SITREPS should be made as frequently as necessary to ensure that those who need to know have a full and timely appreciation of the problem and the progress to deal with the removal of that problem.

G 202.2 Standard Message Format

DTG

FM (sender)

TO (action addressee)

INFO (information addressees)

BT

UNCLAS

TOXIN SITREP (report number)

POLLUTION INCIDENT (identify the case)

1. SITUATION:
2. ACTION TAKEN:
3. FUTURE PLANS AND RECOMMENDATIONS:
4. CASE STATUS: (pends/closed)

BT

G 202.2.1 SITUATION: The situation section should provide the full details on the pollution incident including what happened, type and quantity of material, agencies involved, areas covered and threatened, success of control efforts, prognosis and any other pertinent data.

G 202.2.2 ACTION TAKEN: The action section should include a summary of all action taken so far by the responsible Party, local forces, government agencies and others.

G 202.2.3 FUTURE PLANS: The plans section should include all future action planned.

G 202.2.4 RECOMMENDATIONS: Any recommendations by the OSC pertaining to the response should be included in the recommendations section.

G 202.2.5 CASE STATUS: The status section should indicate "case closed", "case pends", or "participation terminated", as appropriate.

G 203 Revocation

G 203.1 The decision to revoke the joint response to a particular incident shall be made by agreement of the OSC and the DOSC and then recommended to the JRT. The JRT Chairman of the Party which originally invoked the joint response shall revoke it by message to the Chairman of the other Party after consultation with him clearly establishing the date and the time, in GMT, of the cessation of the joint response. The requirement to consult in no way diminishes the invoking Chairman's prerogative to decide upon revocation.

G 203.2 Standard Message Format for Revocation

DTG

FM (sender)

TO (action addressee)

INFO (information addressees)

BT

UNCLAS

TOXIN

CANUSLAK CONTINGENCY PLAN REVOKED AT (date, time — GMT at which joint operations will cease)

BT

G 204 Post-Incident Reports

G 204.1.1 The JRT may instruct each OSC involved to submit reports to the JRT on the incident, the actions taken and any observation or recommendations which need to be made.

G 204.1.2 Each incident which has been the cause of invoking this Plan shall be subjected to an operational debrief by the agencies concerned at a time to be selected by the JRT. This should be as soon as possible after the incident has been declared "closed" and the joint action revoked.

G 204.1.3 To provide the data for an effective operational debrief, both the JRT and the OSC are to maintain a diary of events occurring during an incident.

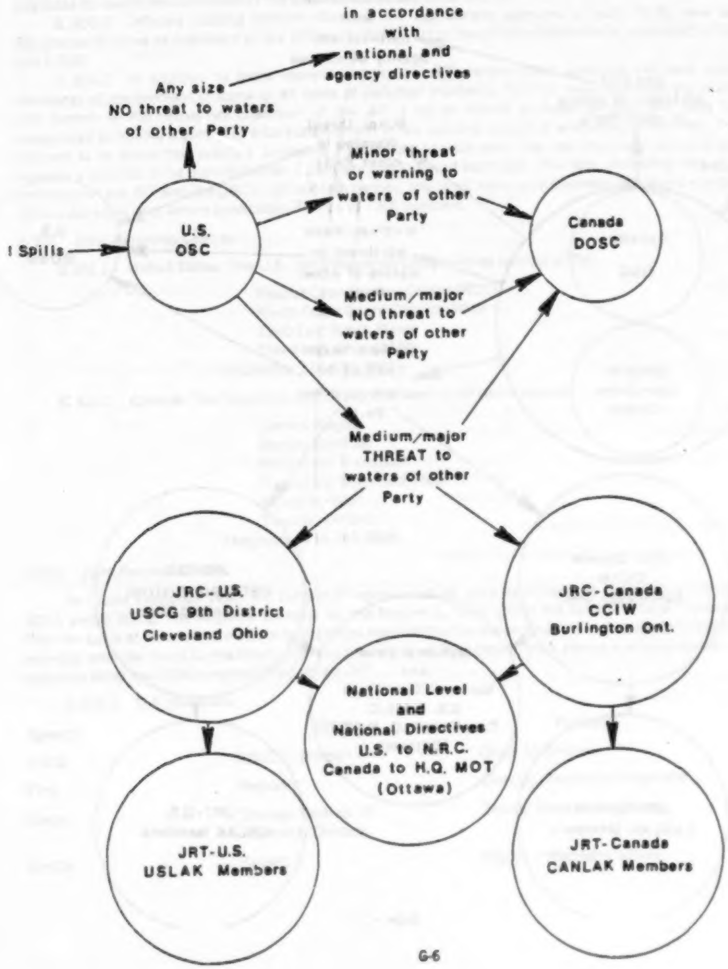
G 204.1.4 The reports required of a JRT are specified in sections 302.3 and 302.4 of the Plan.

G 204.1.5 The Ontario Water Resources Act Requires that all spills be reported forthwith to the Ministry of the Environment and under the Province of Ontario Contingency Plan the Ontario Operations Centre (OOC) receives reports of oil and other noxious material spills within the Province. The OOC will provide the initial communications with the spill site and will normally conduct an investigation of spill reports although reports of spills from shipping will normally be investigated by officials of the Federal Government. The OOC will also inform the Canadian Great Lakes Regional Coordinator of all spills on the Great Lakes. The Ontario Operations Centre is located at:

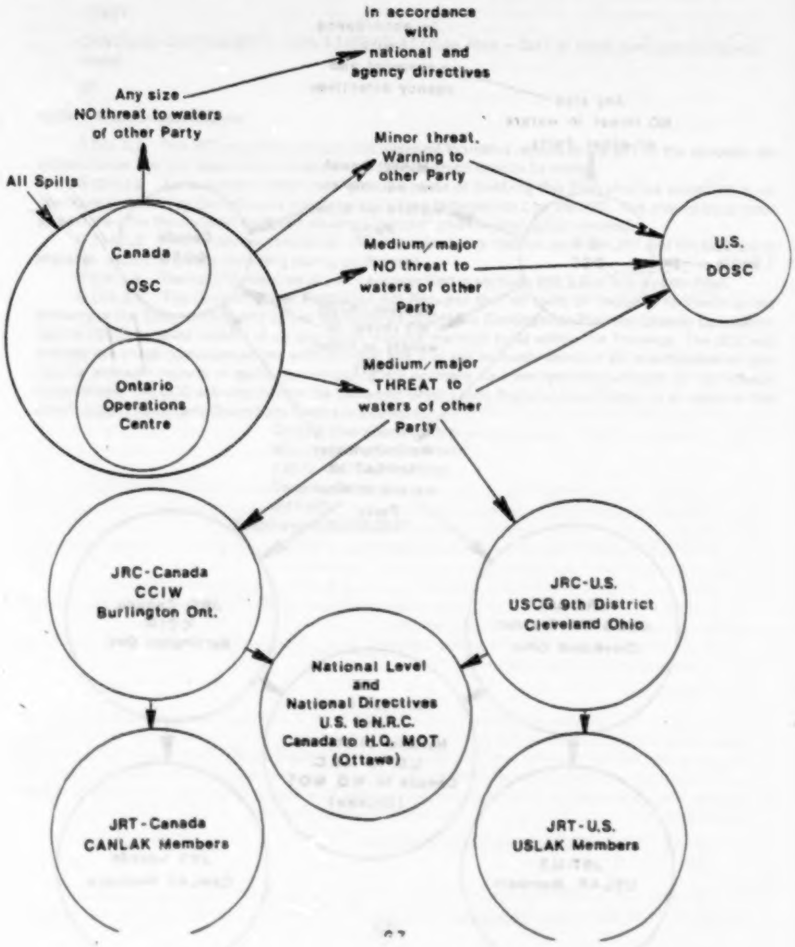
Ontario Operations Centre
Ministry of the Environment
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5
Telephone: 416-965-2537

G 205 Schematics of Rapid Alerting and Reporting System

G 205.1 All Pollution Incidents (U.S.)


in accordance
with
national and
agency directives
Any size
NO threat to waters
of other Party
Minor threat
or warning to
waters of other
Party
l Spills
U.S.
OSC
Canada
DOSC
Medium/major
NO threat to
waters of other
Party
Medium/major
THREAT to
waters of other
Party
JRC-U.S.
USCG 9th District
Cleveland Ohio
JRC-Canada
CCIW
Burlington Ont.
National Level
and
National Directives
U.S. to N.R.C.
Canada to H.Q. MOT
(Ottawa)
JRT-U.S.
USLAK Members
JRT-Canada
CANLAK Members

G 205.2 All Pollution Incidents (Canada)


All Spills
Canada
OSC
Ontario Operations Centre
Any size NO threat to waters of other Party
In accordance with national and agency directives
Minor threat. Warning to other Party
Medium/major NO threat to waters of other Party
Medium/major THREAT to waters of other Party
U.S. DOSC
JRC-Canada CCIW Burlington Ont.
JRC-U.S. USCG 9th District Cleveland Ohio
National Level and National Directives U.S. to N.R.C. Canada to H.Q. MOT (Ottawa)
JRT-Canada CANLAK Members
JRT-U.S. USLAK Members

G 300 DESIGNATED JOINT RESPONSE CENTRES AND OFFICIALS

G 300.1 Joint Response Centres are located at sites where facilities are already available to provide the necessary support requirements to fulfil the provisions of the Plan. The JRT will normally assemble at one of the JRC's established in G 301. However, other sites have been identified as being suitable and are available for use at the discretion of the appropriate chairman of the JRT.

G 300.2 Officials holding certain offices in the appropriate agencies of each Party have been designated to serve as members of the JRT or as OSCs A list of the offices concerned is contained in G 302 and G 303.

G 300.3 In addition to those represented on the JRT, certain other agencies will have varying measures of involvement in some or all types of pollution incidents. Each of these agencies will prepare and furnish to the respective chairman of the JRT a list of names of those officials who have been designated as having a partial or total commitment in the warning system or execution of the Plan. These lists are to be forwarded before 1 June and 1 December of each year. The two chairmen will arrange to compile a joint list to be distributed on 1 January and 1 July of each year. The lists, including data on the members of the JRT and the OSC's, will contain names, positions, home and business telephone numbers, office addresses and, where applicable, Telex and TWX numbers.

G 301 Joint Response Centres

G 301.1 **United States:** The U.S. Joint Response Centre will be located at the:

Rescue Coordination Center (RCC)
Ninth Coast Guard District Office
1240 East Ninth Street
Cleveland, Ohio 44199
Telephone: 216-522-3985

G 301.2 **Canada:** The Canadian Joint Response Centre will be located at:

Central Region
Marine Services
Ministry of Transport
Prudential Bldg. 18th Floor
4 King St. West
Toronto, Ontario
Telephone: 416 369-3636

G 302 Joint Response Team

The Joint Response Team will consist of representatives from each Party as indicated in sections G 302.1 and G 302.2. The Regional Director for the Marine Services under the extant Federal Contingency Plan for spills of oil or other noxious substances shall be the Canadian chairman; the senior Coast Guard member shall be the U.S. chairman. The chairmen may, if they desire, seek advice and information from agencies other than those represented on the JRT.

G 302.1 **U.S. Members**

Agency	Office	Position
USCG	9th C.G. District	Chief, M Division
EPA	Region V	Director, Technical Programs
Corps	Chicago District, N. Central Division	Deputy Division Engineer
DHEW	Region V	Region V Representatives

NOAA	Great Lakes Survey Center Detroit, Michigan	Director

Membership from the States of New York, Pennsylvania, Ohio, Michigan, Minnesota and Wisconsin will be subject to the geographical location of the pollution incident.

G 302.2 Canadian Members

Agency	Office	Position
MOT	Marine Services (Central) Toronto	Regional Director and Great Lakes Coordinator
DOE	Canada Centre for Inland Waters (Burlington)	Director
MOT	Marine Services (Ottawa)	Senior Marine Emergency Officer
DOE	Environmental Protection Service (Toronto)	Regional Director
DND	Commander, Central Command (Trenton)	Senior Staff Officer Regional Operations
Province of Ontario		
Ministry of Environment	Water Management (Toronto)	Contingency Planning Coordinator
Ministry of Natural Resources	Fish and Wildlife Branch (Toronto)	Director
Ministry of Health	Environmental Health Services Branch (Toronto)	Director

G 303 On-Scene Commanders

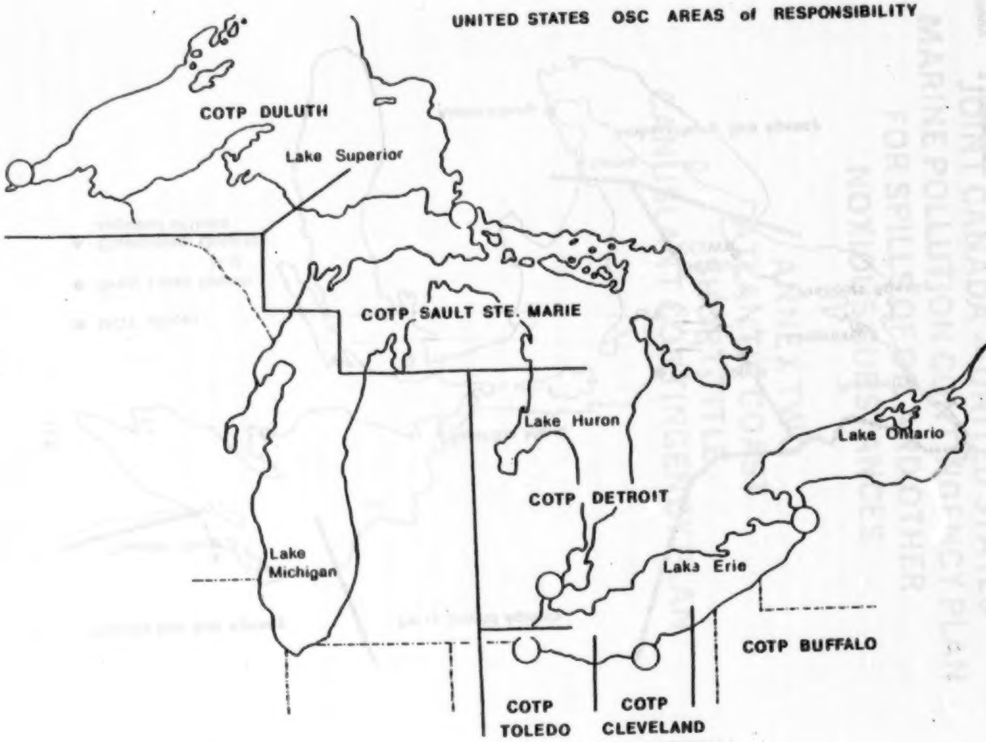
G 303.1 U.S. On-Scene Commanders

On-Scene Commanders are the Coast Guard Captains of the Port. Their areas of responsibility are portrayed in Appendix One to this Annex.

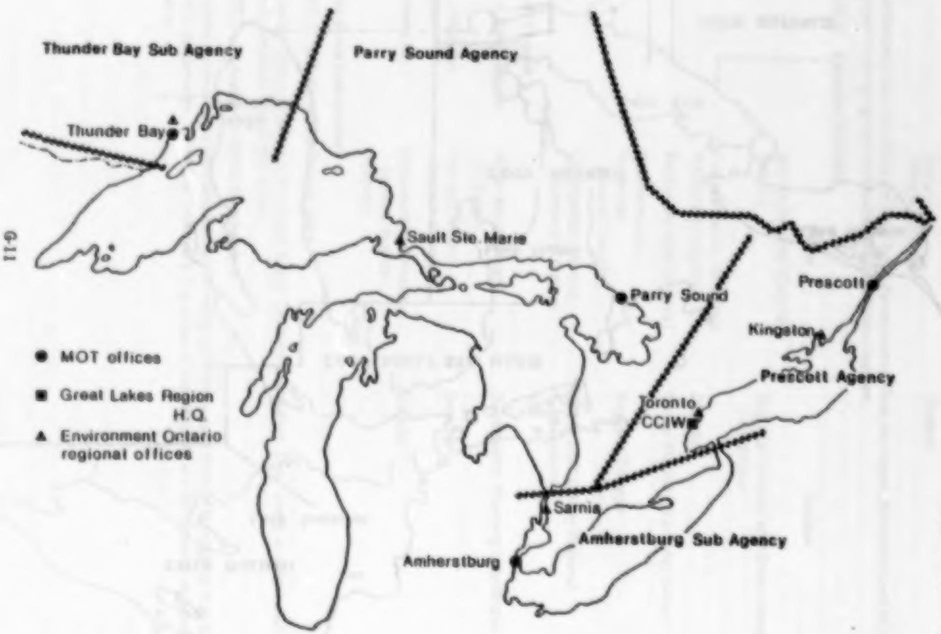
G 303.2 Canadian On-Scene Commanders

On-Scene Commanders are those officials carrying out the duties of District Manager or Sub District Manager Marine Services, Ministry of Transport. The areas of responsibility are portrayed in Appendix Two to this Annex.

UNITED STATES OSC AREAS of RESPONSIBILITY


COTP DULUTH
Lake Superior
COTP SAULT STE. MARIE
Lake Huron
Lake Michigan
COTP DETROIT
Lake Ontario
Lake Erie
COTP BUFFALO
COTP TOLEDO
COTP CLEVELAND

GREAT LAKES REGION CANADIAN OSC AREAS of RESPONSIBILITY


Thunder Bay Sub Agency
Parry Sound Agency
Thunder Bay
Sault Ste. Marie
Parry Sound
Prescott
Kingston
Prescott Agency
Toronto
CCIW
Sarnia
Amherstburg
Amherstburg Sub Agency
● MOT offices
■ Great Lakes Region H.Q.
▲ Environment Ontario regional offices

JOINT CANADA — UNITED STATES MARINE POLLUTION CONTINGENCY PLAN FOR SPILLS OF OIL AND OTHER NOXIOUS SUBSTANCES

ANNEX TWO
ATLANTIC COAST
SHORT TITLE
CANUSLANT CONTINGENCY PLAN

67-748 O—80——12

ANNEX TWO

All numbered sections in this Annex are further identified by the letter A for 'Atlantic'.

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A 100 SCOPE

A 101 Responsibility Areas and Funding

A 101.1 This Annex applies to the internal waters of each Party, and to the waters of the Gulf of Maine, seaward to 42 degrees, 45 minutes North latitude.

A 101.2 For the purposes of this Plan and this Annex, each Party shall be responsible for its internal waters and for its territorial sea and contiguous zone waters up to twelve miles from the baseline from which its territorial sea is measured. The waters beyond twelve miles subject to this Plan and Annex are divided into two parts by the meridian of 67 degrees, 28 minutes West commencing at latitude 44 degrees, 15 minutes, 57 seconds North and terminating at latitude 42 degrees, 45 minutes North. The waters beyond twelve miles east of this meridian shall be within Canada's area of responsibility; and the waters beyond twelve miles west of this meridian shall be within the United States' area of responsibility. It is agreed that the division into two parts of the waters beyond twelve miles identified in section A101.1 for this specific purpose is not related to and shall not prejudice the delimination of offshore jurisdiction between Canada and the United States for other purposes.

A 101.3 A pollution incident, as defined in 105.1 of the Plan, from any source including vessels, refining, transfer or storage facilities, or seabed activity is covered by this Annex.

A 101.4 A pollution incident, which although not a threat to the areas of responsibility of both Parties' OSC's nevertheless is of such a magnitude as to warrant a plea for assistance and/or the loan of resources is provided for, with the proviso that the Party seeking the aid shall pay all the costs of the other Party unless alternative arrangements are made.

A 101.5 Response operations shall be funded in accordance with section 202 of the Plan.

A 102 Involved Agencies and Designations

A 102.1 **Canada**

A 102.1.1 **Federal Agencies**

Ministry of Transport — Regional Director Marine Services, Maritimes (RDMS Maritimes)

Department of the Environment — Regional Director Atlantic, Environmental Protection Service

Department of National Defence — Commander, Maritime Command

Department of Energy, Mines and Resources — District Conservation Engineer East Coast
Resource Management and Conservation Branch

A 102.1.2 **Nova Scotia Provincial Agencies**

Nova Scotia Water Resources Commission

A 102.1.3 **New Brunswick Provincial Agencies**

New Brunswick Department of the Environment
New Brunswick Transportation Authority

A 102.2 **United States**

A 102.2.1 **Federal Agencies**

Department of the Interior

Department of Transportation — USCG First Coast Guard District

Department of Commerce — National Oceanic and Atmospheric Administration (NOAA)
Maritime Administration (MarAd)

Department of Defense — U.S. Army Corps of Engineers Division and District Office
U.S. Navy First Naval District
U.S. Air Force First Rescue Region

Department of Health, Education & Welfare — Region I

Environmental Protection Agency — Region I

A 102.2.2 State Agencies

State of Maine — Environmental Improvement Commission
State Mansion
Augusta, Maine

A 200 REPORTS AND COMMUNICATIONS

A 201 Rapid Alerting System

A 201.1 Any potential pollution threat to the other Party shall be reported to the appropriate agency of that Party without delay. Speed of reaction is vital to the successful outcome of an operation.

A 201.2 While it may take some assessment to decide whether or not to invoke the Plan, a warning that the plan may be invoked should be given. This warning will not activate the Plan. It will, however, permit immediate preparation for the possibility of its invocation. The warning message shall be in the following format:

DTG

FM (sender)

TO (action addressee)

INFO (information addressees)

BT

UNCLAS

CANUSLANT TOXINTOCSIN

1. GEOGRAPHICAL POSITION
2. ANY OTHER DETAILS
3. ACKNOWLEDGE

BT

Such a message will normally be originated by RDMS Maritimes for Canada or by the Commander, First Coast Guard District for the United States and must always be acknowledged by the action addressee.

A 201.3 Invocation

This Plan shall be activated only by formal invocation. This will normally be done by message from RDMS Maritimes for Canada or from the Commander, First Coast Guard District for the United States. This message should contain at least the following information:

DTG

FM (sender)

TO (action addressee)

INFO (information addressees)

BT

UNCLAS

TOXIN

CANUSLANT CONTINGENCY PLAN INVOKED AT (time GMT)

OSC (name)

HQ ESTABLISHED AT (name and telephone no.)

ACKNOWLEDGE

BT

In the acknowledgement message to the above, the receiving party shall report the name of the DOSC appointed and his ETA at the locality of the Headquarters established by the original message of invocation.

A 202 Situation Report Requirements (TOXIN SITREP)

A 202.1 Up to date information on a spill which has justified joint response activity is essential to the effective management and outcome of an incident. This information should be submitted by the nominated OSC to the JRT on the format shown below. TOXIN SITREPS should be made as frequently as necessary to ensure that those who need to know have a full and timely appreciation of the problem and the progress to deal with the removal of that problem.

A 202.2 Standard Message Format

DTG
FM (sender)
TO (action addressee)
INFO (information addressees)
BT
UNCLAS
TOXIN SITREP (report number)
POLLUTION INCIDENT (identify the case)

1. SITUATION:
2. ACTION TAKEN:
3. FUTURE PLANS AND RECOMMENDATIONS:
4. CASE STATUS: (pends/closed)

BT

A 202.2.1 SITUATION: The situation section should provide the full details on the pollution incident including what happened, type and quantity of material, agencies involved, areas covered and threatened, success of control efforts, prognosis and any other pertinent data.

A 202.2.2 ACTION TAKEN: The action section should include a summary of all action taken so far by the responsible Party, local forces, government agencies and others.

A 202.2.3 FUTURE PLANS: The plans section should include all future action planned.

A 202.2.4 RECOMMENDATIONS: Any recommendations by the OSC pertaining to the response should be included in the recommendations section.

A 202.2.5 CASE STATUS: The status section should indicate "case closed", "case pends", or "participation terminated", as appropriate.

A 203 Revocation

A 203.1 The decision to revoke the joint response to a particular incident shall be made by agreement of the OSC and the DOSC and then recommended to the JRT. The JRT chairman of the Party which originally invoked the joint response shall revoke it by message to the chairman of the other Party after consultation with him clearly establishing the date and the time, in GMT, of the cessation of the joint response. The requirement to consult in no way diminishes the invoking chairman's prerogative to decide upon revocation.

A 203.2 Standard Message Format for Revocation

DTG
FM (sender)

TO (action addressees)
INFO (information addressees)
BT
UNCLAS
TOXIN
CANUSLANT CONTINGENCY PLAN REVOKED AT (date, time — GMT at which joint operations will cease)
BT

A 204 Post-Incident Reports

A 204.1.1 The JRT may instruct each OSC involved to submit reports to the JRT on the incident, the actions taken and any observation or recommendations which need to be made.

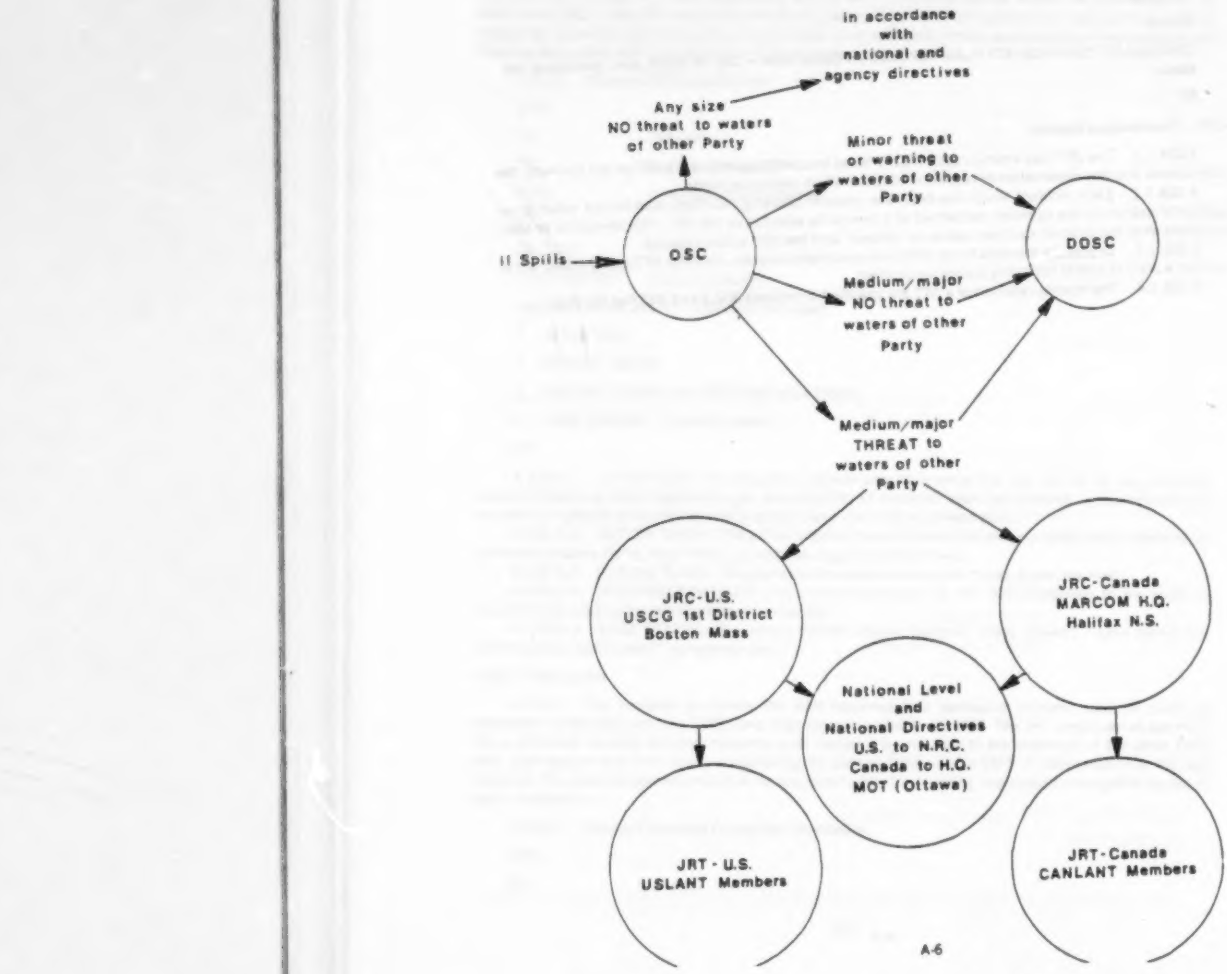
A 204.1.2 Each incident which has been the cause of invoking this Plan shall be subjected to an operational debrief by the agencies concerned at a time to be selected by the JRT. This should be as soon as possible after the incident has been declared "closed" and the joint action revoked.

A 204.1.3 To provide the data for an effective operational debrief, both the JRT and the OSC are to maintain a diary of events occurring during an incident.

A 204.1.4 The reports required of a JRT are specified in sections 302.3 and 302.4 of the Plan.

A 205 Schematic of Rapid Alerting and Reporting System

A 205.1 All Pollution Incidents


in accordance with national and agency directives
Any size NO threat to waters of other Party
Minor threat or warning to waters of other Party
All Spills
OSC
DOSC
Medium/major NO threat to waters of other Party
Medium/major THREAT to waters of other Party
JRC-U.S. USCG 1st District Boston Mass
JRC-Canada MARCOM H.Q. Halifax N.S.
National Level and National Directives U.S. to N.R.C. Canada to H.Q. MOT (Ottawa)
JRT - U.S. USLANT Members
JRT-Canada CANLANT Members

A 300 DESIGNATED JOINT RESPONSE CENTRES AND OFFICIALS

A 300.1 Joint Response Centres are located at sites where facilities are already available to provide the necessary support requirements to fulfil the provisions of the Plan. The JRT will normally assemble at one of the JRC's established in A 301. However, other sites have been identified as being suitable and are available for use at the discretion of the appropriate chairman of the JRT.

A 300.2 Officials holding certain offices in the appropriate agencies of each Party have been designated to serve as members of the JRT or as OSCs. A list of the offices concerned is contained in A 302 and A 303.

A 300.3 In addition to those represented on the JRT, certain other agencies will have varying measures of involvement in some or all types of pollution incidents. Each of these agencies will prepare and furnish to the respective chairman of the JRT a list of names of those officials who have been designated as having a partial or total commitment in the warning system or execution of the Plan. These lists are to be forwarded before 1 June and 1 December of each year. The two chairmen will arrange to compile a joint list to be distributed on 1 January and 1 July of each year. These lists, including data on the members of the JRT and the OSCs, will contain names, positions, home and business telephone numbers, office addresses and, where applicable, Telex and TWX numbers.

A 301 Joint Response Centres

A 301.1 **United States:** The U.S. Joint Response Centre will be located at the:
Rescue Coordination Center (RCC)
First Coast Guard District Office
150 Causeway Street
Boston, Massachusetts
Telephone 617-223-6915

A 301.2 **Canada:** The Canadian Joint Response Centre will be located at the:
Marine Services Info. Centre
46 Portland St., 3rd Floor
Dartmouth, N.S.
Telephone: 902-426-6030

A 302 Joint Response Team

The Joint Response Team will consist of representatives from each Party as indicated in sections A 302.1 and A 302.2. The Regional Director Marine Services Maritimes shall be the Canadian chairman; the senior Coast Guard member shall be the U.S. chairman. The chairmen may, if they desire, seek advice and information from agencies other than those represented on the JRT.

A 302.1 **U.S. Members**

Agency	Office	Position
USCG	1st C.G. District	Chief M Division
EPA	Region I	Operations
USN	1st Naval District	Deputy Chief of Staff for Operations and Logistics
Corps	NE Division	Chief, Operations Division
DOI	Geological Survey	District Chief
NOAA	National Marine Fisheries Service Gloucester, Maine	Regional Director
State of Maine	Environmental Improvement Commission	

A 302.2 **Canadian Members**

Agency	Office	Position
MOT	Marine Services (Maritimes)	Regional Director
MOT	Marine Services (Ottawa)	Senior Marine Emergency Officer
DND	Maritime Command	Chief of Staff Operations
DOE	Environmental Protection Service (Halifax)	Regional Director
EMR	Resource Management and Conservation Branch (Ottawa)	Senior Conservation Engineer
Government of New Brunswick	as appointed	
Government of Nova Scotia	as appointed	

A 303 **On-Scene Commanders**

A 303.1 **U.S. On-Scene Commander**

Commander,
Coast Guard Group Southwest Harbor
Southwest Harbor, Maine

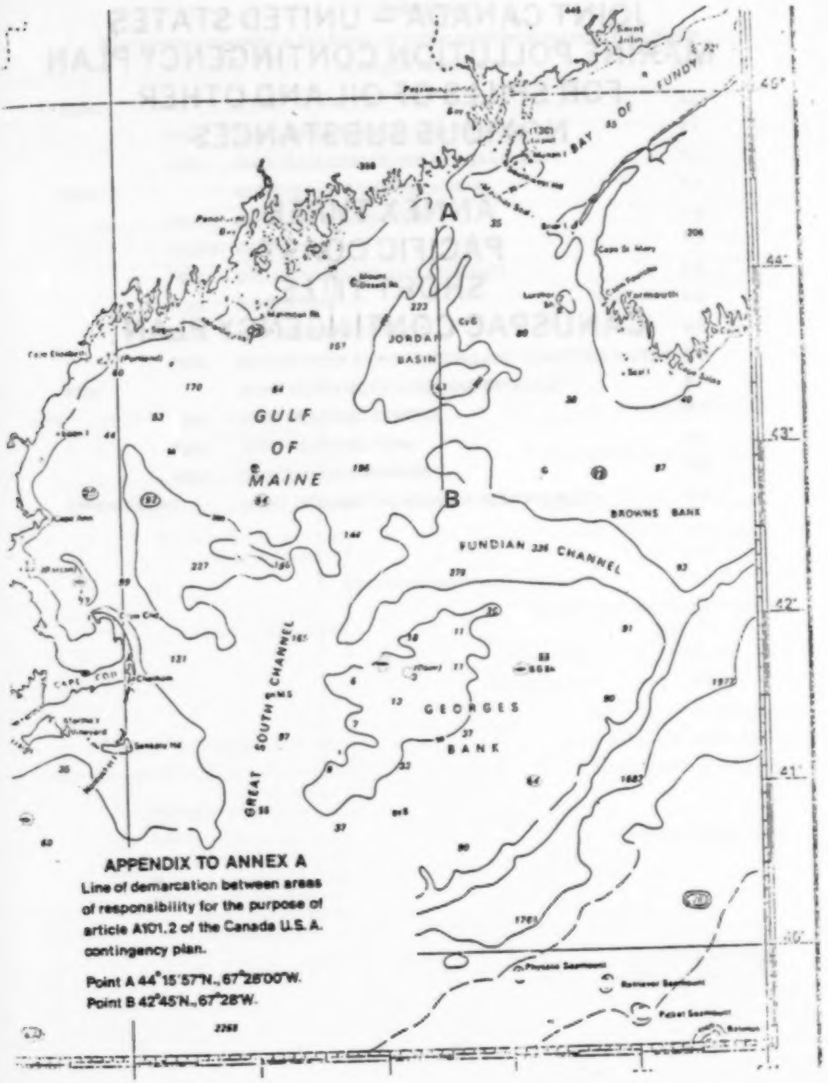
A 303.2 **Canadian On-Scene Commander**

The Bay of Fundy bound on the south side by a line drawn between 44° 23' 30"N, 67° 18' 15"W and Brier Island

The District Manager
Marine Services, MOT
Saint John, N.B.

The area south of the above line

The District Manager
Marine Services, MOT
Dartmouth, N.S.


BAY OF FUNDY
Saint John
Passamaquoddy Bay
Penobscot Bay
Mount Desert Is.
Cape St. Mary
Yarmouth
Cape Sable
Cape Ann
Cape Cod
Chatham
Martha's Vineyard
Nantucket Is.
A
B
JORDAN BASIN
GULF OF MAINE
BROWNS BANK
FUNDIAN CHANNEL
GREAT SOUTH CHANNEL
GEORGES BANK
45°
44°
43°
42°
41°
40°

APPENDIX TO ANNEX A

Line of demarcation between areas of responsibility for the purpose of article A101.2 of the Canada U.S.A. contingency plan.

Point A 44°15'57"N., 67°28'00"W.
Point B 42°45'N., 67°28'W.

JOINT CANADA — UNITED STATES MARINE POLLUTION CONTINGENCY PLAN FOR SPILLS OF OIL AND OTHER NOXIOUS SUBSTANCES

ANNEX THREE
PACIFIC COAST
SHORT TITLE
CANUSPAC CONTINGENCY PLAN

ANNEX THREE

All numbered paragraphs in this Annex are further identified by the letter P for 'Pacific'.

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P 100 SCOPE

P 101 Responsibility Areas and Funding

P 101.1 This Annex applies to the internal waters of each Party and to the waters off the Pacific Coasts of Canada and the contiguous United States extending seaward.

P 101.2 The line drawn on the chart in the Appendix to this Annex indicates the area of waters off the Pacific Coast for which each Party is responsible for the purpose of the Plan and this Annex. It is agreed that the adoption of this line for this specific purpose is not related to and shall not prejudice the delimitation of offshore jurisdiction between Canada and the United States for other purposes.

P 101.3 A pollution incident, as defined in 105.1 of the Plan, from any source including vessels, refining, transfer or storage facilities, or seabed activity is covered by this Annex.

P 101.4 A pollution incident, which although not a threat to the areas of responsibility of both Parties' OSCs nevertheless is of such a magnitude as to warrant a plea for assistance and/or the loan of resources is provided for, with the proviso that the Party seeking the aid shall pay all the costs of the other Party unless alternative arrangements are made.

P 101.5 Response operations shall be funded in accordance with section 202 of the Plan.

P 102 Involved Agencies and Designations

P 102.1 **Canada**

Federal Agencies

Ministry of Transport	—	Regional Director Marine Services, Western (RDMS Western)
Department of the Environment	—	Regional Director, Pacific Environmental Protection Service
Department of National Defence	—	Maritime Commander, Pacific
Department of Energy, Mines and Resources	—	Resource Management and Conservation Branch

P 102.1.2 **British Columbia Provincial Agencies**

Department of Lands, Forests and Water Resources	—	Pollution Control Branch

P 102.2 **United States**

P 102.2.1 **Federal Agencies**

Department of the Interior		
Department of Transportation	—	USCG Thirteenth Coast Guard District
Department of Commerce	—	National Oceanic and Atmospheric Administration (NOAA) Maritime Administration (MarAd)
Department of Defense	—	U.S. Army Corps of Engineers Division and District Office Sixth U.S. Army Thirteenth U.S. Naval District United States Air Force Regional Representative
Department of Health, Education and Welfare	—	Region X

Environmental Protection Agency — Region X

P 102.2.2 **State Agencies**

State of Washington — Department of Ecology
P. O. Box 824
Olympia, Washington 98501

P 200 REPORTS AND COMMUNICATIONS

P 201 **Rapid Alerting System**

P 201.1 Any potential pollution threat to the other Party shall be reported to the appropriate agency of that Party without delay. Speed of reaction is vital to the successful outcome of an operation.

P 201.2 While it may take some assessment to decide whether or not to invoke the Plan, however, a warning that the Plan may be invoked should be given. This warning will not activate the Plan. It will, however, permit immediate preparation for the possibility of its invocation. The warning message shall be in the following format:

DTG

FM (sender)

TO (action addressee)

INFO (information addressee)

BT

UNCLAS

CANUSPAC TOXINTOCSIN

1. GEOGRAPHICAL POSITION
2. ANY OTHER DETAILS
3. ACKNOWLEDGE

BT

Such a message will normally be originated by RDMS Western for Canada and the Commander, Thirteenth Coast Guard District for the United States and must always be acknowledged by the action addressee.

P 201.3 **Invocation**

This Plan shall be activated only by formal invocation. This will normally be done by message from RDMS Western for Canada or from the Commander, Thirteenth Coast Guard District for the United States. This message should contain at least the following information:

DTG

FM (sender)

TO (action addressee)

INFO (information addressees)

BT

UNCLAS

TOXIN

CANUSPAC CONTINGENCY PLAN INVOKED AT (time GMT)

OSC (name)

HQ ESTABLISHED AT (name and telephone no.)

ACKNOWLEDGE

BT

In the acknowledgement message to the above, the receiving party shall report the name of the DOSC ppointed and his ETA at the locality of the Headquarters established by the original message of vocation.

202 Situation Report Requirements (TOXIN SITREP)

P 202.1 Up to date information on a spill which has justified joint response activity is essential to e effective management and outcome of an incident. This information should be submitted by the ominated OSC to the JRT on the format shown below. TOXIN SITREPS should be made as frequently as ecessary to ensure that those who need to know have a full and timely appreciation of the problem and e progress to deal with the removal of that problem.

P 202.2 **Standard Message Format**

DTG
FM (sender)
TO (action addressee)
INFO (information addressees)
BT
UNCLAS
TOXIN SITREP (report number)
POLLUTION INCIDENT (identify the case)

1. SITUATION:
2. ACTION TAKEN:
3. FUTURE PLANS AND RECOMMENDATIONS:
4. CASE STATUS: (pends/closed)

BT

P 202.2.1 SITUATION: The situation section should provide the full details on the pollution ncident including what happened, type and quantity of material, agencies involved, areas covered and threatened, success of control efforts, prognosis and any other pertinent data.

P 202.2.2 ACTION TAKEN: The action section should include a summary of all action taken so far by the responsible Party, local forces, government agencies and others.

P 202.2.3 FUTURE PLANS: The plans section should include all future action planned.

P 202.2.4 RECOMMENDATIONS: Any recommendations by the OSC pertaining to the response should be included in the recommendations section.

P 202.2.5 CASE STATUS: The Status section should indicate "case closed", "case pends", or "participation terminated", as appropriate.

P 203 Revocation

P 203.1 The decision to revoke the joint response to a particular incident shall be made by agreement of the OSC and the DOSC and then recommended to the JRT. The JRT chairman of the Party which originally invoked the joint response shall revoke it by message to the chairman of the other Party after consultation with him clearly establishing the date and the time, in GMT, of the cessation of the joint response. The requirement to consult in no way diminishes the invoking chairman's prerogative to decide upon revocation.

best copy available

P 203.2 Standard Message Format for Revocation

DTG

FM (sender)

TO (action addressee)

INFO (information addressees)

BT

UNCLAS

TOXIN

CANUSPAC CONTINGENCY PLAN REVOKED AT (date, time — GMT at which joint operations will cease)

BT

P 204 Post-Incident Reports

P 204.1.1 The JRT may instruct each OSC involved to submit reports to the JRT on the incident, the actions taken and any observation or recommendations which need to be made.

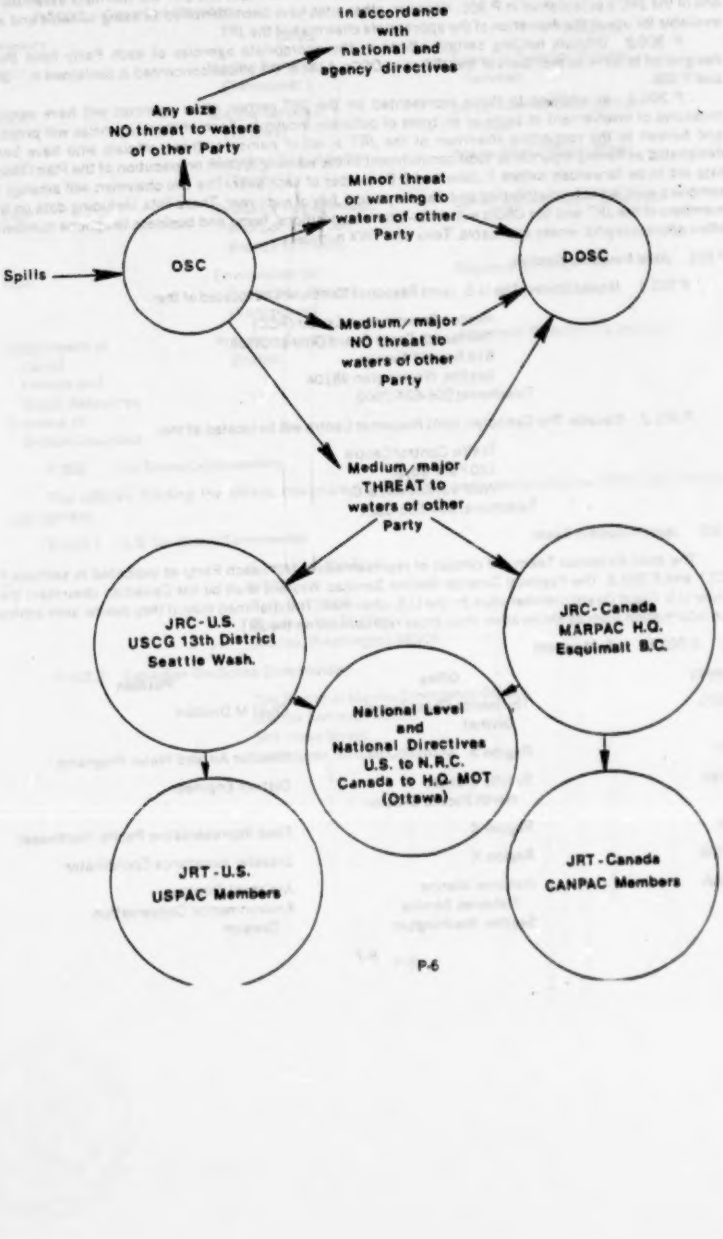
P 204.1.2 Each incident which has been the cause of invoking this Plan shall be subjected to an operational debrief by the agencies concerned at a time to be selected by the JRT. This should be as soon as possible after the incident has been declared "closed" and the joint action revoked.

P 204.1.3 To provide the data for an effective operational debrief, both the JRT and the OSC are to maintain a diary of events occurring during an incident.

P 204.1.4 The reports required of a JRT are specified in sections 302.3 and 302.4 of the Plan.

P 205 Schematic of Rapid Alerting and Reporting System

P 205.1 All Pollution Incidents


in accordance
with
national and
agency directives
Any size
NO threat to waters
of other Party
Minor threat
or warning to
waters of other
Party
Spills
OSC
DOSC
Medium/major
NO threat to
waters of other
Party
Medium/major
THREAT to
waters of other
Party
JRC-U.S.
USCG 13th District
Seattle Wash.
JRC-Canada
MARPAC H.Q.
Esquimalt B.C.
National Level
and
National Directives
U.S. to N.R.C.
Canada to H.Q. MOT
(Ottawa)
JRT-U.S.
USPAC Members
JRT-Canada
CANPAC Members

P 300 DESIGNATED JOINT RESPONSE CENTRES AND OFFICIALS

P 300.1 Joint Response Centres are located at sites where facilities are already available to provide the necessary support requirements to fulfil the provisions of the Plan. The JRT will normally assemble at one of the JRC's established in P 301. However, other sites have been identified as being suitable and are available for use at the discretion of the appropriate chairman of the JRT.

P 300.2 Officials holding certain offices in the appropriate agencies of each Party have been designated to serve as members of the JRT or as OSCs. A list of the offices concerned is contained in P 302 and P 303.

P 300.3 In addition to those represented on the JRT certain other agencies will have varying measures of involvement in some or all types of pollution incidents. Each of these agencies will prepare and furnish to the respective chairman of the JRT a list of names of those officials who have been designated as having a partial or total commitment in the warning system or execution of the Plan. These lists are to be forwarded before 1 June and 1 December of each year. The two chairmen will arrange to compile a joint list to be distributed on 1 January and 1 July of each year. These lists, including data on the members of the JRT and the OSC's will contain names, positions, home and business telephone numbers, office addresses and, where applicable, Telex and TWX numbers.

P 301 Joint Response Centres

P 301.1 **United States:** The U.S. Joint Response Centre will be located at the:

Rescue Coordination Center (RCC)
Thirteenth Coast Guard District Office
618 Second Avenue
Seattle, Washington 98104
Telephone: 206-624-2902

P 301.2 **Canada:** The Canadian Joint Response Centre will be located at the:

Traffic Control Centre
100 Park Royal
West Vancouver, B.C.
Telephone: 604-666-6321

P 302 Joint Response Team

The Joint Response Team will consist of representatives from each Party as indicated in sections P 302.1 and P 302.2. The Regional Director Marine Services Western shall be the Canadian chairman; the senior U.S. Coast Guard member shall be the U.S. chairman. The chairmen may, if they desire, seek advice and information from agencies other than those represented on the JRT.

P 302.1 **U.S. Members**

Agency	Office	Position
USCG	Thirteenth Coast Guard District	Chief M Division
EPA	Region X	Director Air and Water Programs
Corps	Seattle District North Pacific Division	District Engineer
DOI	Region X	Field Representative Pacific Northwest
DHEW	Region X	Disaster Assistance Coordinator
NOAA	National Marine Fisheries Service Seattle, Washington	Assistant Director, Environmental Conservation Division

Department of Ecology State of Washington	Administrator	Deputy Director

P 302.2 **Canadian Members**

Agency	Office	Position
MOT	Marine Services, (Vancouver)	Regional Director Marine Services
MOT	Marine Services, (Ottawa)	Senior Marine Emergency Officer
DND	Maritime Commander (Pacific)	Senior Staff Officer, Plans
EMR	Resource Management and Conservation Branch (Ottawa)	Senior Conservation Engineer
DOE	Environmental Protection Service (Vancouver)	Regional Director
Department of Lands Forests and Water Resources Province of British Columbia	Pollution Control Branch	Assistant Director (Technical)

P 303 **On-Scene Commanders**

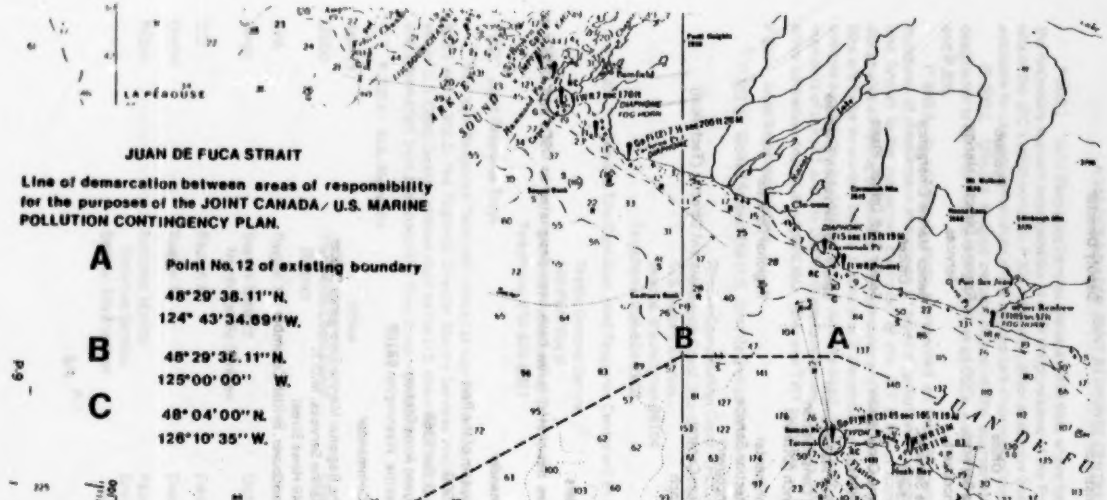
The officials holding the offices designated below have been designated as OSCs and DOSCs as appropriate.

P 303.1 **U.S. On-Scene Commander**

Captain of the Port
USCG
P. O. Box 9368
Queen Anne Station
Seattle, Washington 98109

P 303.2 **Canadian On-Scene Commander**

The Regional Marine Emergency Officer
Marine Services, M.O.T.
549 Howe Street
Vancouver, British Columbia


LA PÉROUSE
BARKLEY SOUND
Bamfield
DIAPHONE
FOG HORN
Port Renfrew
JUAN DE FU
A
B
Neah Bay
Clallam Ba
Pt. of the Arches
C. Alava
Lake
P-9
125°00'

JUAN DE FUCA STRAIT

Line of demarcation between areas of responsibility for the purposes of the JOINT CANADA / U.S. MARINE POLLUTION CONTINGENCY PLAN.

A	Point No. 12 of existing boundary 48°29' 38.11'' N. 124° 43'34.69'' W.
B	48°29' 38.11'' N. 125°00' 00'' W.
C	48° 04' 00'' N. 126°10' 35'' W.

OLLUTION

ddition to Joint Contingency Plan
f Annex IV Concerning Beaufort Sea

Agreement Between the
UNITED STATES OF AMERICA
and CANADA

Effected by Exchange of Notes
Signed at Ottawa July 28 and August 30, 1977

NOTE BY THE DEPARTMENT OF STATE

Pursuant to Public Law 89–497, approved July 8, 1966 (80 Stat. 271; 1 U.S.C. 113)—

> "... the Treaties and Other International Acts Series issued under the authority of the Secretary of State shall be competent evidence ... of the treaties, international agreements other than treaties, and proclamations by the President of such treaties and international agreements other than treaties, as the case may be, therein contained, in all the courts of law and equity and of maritime jurisdiction, and in all the tribunals and public offices of the United States, and of the several States, without any further proof or authentication thereof."

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Subscription Price: $100 per year; $25 additional for foreign mailing. Single copies vary in price. This issue 80 cents.

CANADA

Pollution: Addition to Joint Contingency Plan of Annex IV Concerning Beaufort Sea

Agreement effected by exchange of notes
Signed at Ottawa July 28 and August 30, 1977;
Entered into force August 30, 1977.

2

The Canadian Secretary of State for External Affairs to the American Ambassador

Department of External Affairs
Ministère des Affaires extérieures
Canada

July 28, 1977, Ottawa

No. FLO-1129

Excellency,

I have the honour to refer to the Agreement between our two countries concerning the establishment of a Joint Marine Pollution Contingency Plan, constituted by an Exchange of Notes done in Ottawa on June 19, 1974 [1] and to recent discussions between representatives of our two Governments concerning the addition of a further annex (Annex IV) to the Plan related to waters off the Arctic Coast of Canada and the United States in the Beaufort Sea.

I have the honour to propose that Annex IV, dated June 10, 1977, [2] be added to the Plan and that it be given the same effect under the Plan as Annexes I to III.

If the foregoing proposals are acceptable to the Government of the United States, I have the honour to propose that this Note, which is equally authentic in English and French, and Your Excellency's reply to that effect shall

His Excellency Thomas Enders,
Ambassador of the United States of America,
Ottawa.

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[1] TIAS 7861; 25 UST 1280.

[2] Not printed herein. The annex is deposited in the archives of the Department of State where it is available for reference.

constitute an Agreement between Canada and the United States which shall enter into force on the date of your reply.

Accept, Excellency, the renewed assurances of my highest consideration.

Don Jamieson [1]

Secretary of State for
External Affairs

---

[1] Don. Jamieson

4

French Text of the Canadian Note

Department of External Affairs — Ministère des Affaires extérieures

Canada

Ottawa, le28 juillet 1977

N° FLO-1129

Excellence,

J'ai l'honneur de me référer à l'Accord intervenu entre nos deux pays concernant l'établissement d'un Plan d'urgence conjoint en cas de pollution marine, que constituent les Notes échangées à Ottawa le 19 juin 1974, et aux récentes discussions qui ont eu lieu entre les représentants de nos deux Gouvernements concernant l'ajout d'une nouvelle Annexe (Annexe IV) relative aux eaux s'étendant au large de la côte arctique du Canada et des Etats-Unis dans la Mer de Beaufort.

J'ai l'honneur de proposer que l'Annexe IV, en date du 10 juin 1977, soit ajoutée au Plan et ait même effet en vertu du Plan que les Annexes I à III.

Si les propositions qui précèdent agréent au Gouvernement des Etats-Unis, j'ai l'honneur de proposer que la présente Note, dont les versions anglaise et

Son Excellence Thomas Enders,
Ambassadeur des Etats-Unis d'Amérique,
Ottawa.

française font également foi, et la réponse de votre Excellence à cet effet constituent, entre le Canada et les Etats-Unis, un Accord qui entrera en vigueur à la date de votre réponse.

Veuillez agréer, Excellence, les assurances de ma très haute considération.

D.C. Jamieson

Le Secrétaire d'Etat aux
Affaires extérieures

6

The American Ambassador to the Canadian Secretary of State for External Affairs

**Embassy Of The
United States of America**

Ottawa, August 30, 1977

No. 209

Sir:

I have the honor to acknowledge receipt of your Note, No. FLO-1129, of July 28, 1977, which reads as follows:

"Excellency:

"I have the honour to refer to the Agreement between our two countries concerning the establishment of a Joint Marine Pollution Contingency Plan, constituted by an Exchange of Notes done in Ottawa on June 19, 1974 and to recent discussions between representatives of our two Governments concerning the addition of a further annex (Annex IV) to the Plan related to waters off the Arctic Coast of Canada and the United States in the Beaufort Sea.

"I have the honour to propose that Annex IV, dated June 10, 1977, be added to the Plan and that it be given the same effect under the Plan as Annexes I to III.

"If the foregoing proposals are acceptable to the Government of the United States, I have the honour to propose that this Note, which is equally authentic in English and French, and your Excellency's reply to that effect shall constitute an Agreement between Canada

**The Honorable
Donald C. Jamieson,
Secretary of State for
External Affairs,
Ottawa.**

TIAS 8957

and the United States which shall enter into force on the date of your reply.

"Accept, Excellency, the renewed assurances of my highest consideration."

I have the honor to inform you that the foregoing proposals are acceptable to the Government of the United States of America and to confirm that your Note which is equally authentic in English and French, and this reply shall constitute an Agreement between our two Governments which shall enter into force on the date of this reply.

Accept, Sir, the renewed assurances of my highest consideration.

[1]

Tom Enders

---

[1] Tom Enders

U.S. GOVERNMENT PRINTING OFFICE : 1978 O—32-808

ANNEX FOUR ADDED BY
OF NOTES OF JULY 28
AUGUST 30, 1977.

ANNEX FOUR

All numbered paragraphs in this Annex are further identified by the letter N fo

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June 10,

N 100 SCOPE

N 101 Responsibility Areas and Funding

N 101.1 This Annex applies to the internal waters of each Par
and to the waters off the Arctic Coast of Canada and the United
States extending seaward in the Beaufort Sea area to the extent of
jurisdiction for the purposes of fishery management and conservation
and exploration and exploitation of the natural resources of the
continental shelf.

N 101.2.1 For purposes of this Plan and this Annex, each Party
shall be responsible for response operations in accordance with the
Plan taken as a result of activities in the areas under its jurisdic

N 101.2.2 Each Party shall be responsible for the costs of resp
operations in accordance with Section 202 of this Plan.

N 101.2.3 In the event there are differences over determining t
responsibility of either Party in accordance with Section N 101.2.2,
the matter shall be referred by the Parties if circumstances warrant
to an arbitrator as may be mutually agreed.

N 101.2.4 Notwithstanding Section 101.2.3, the Party which fir
becomes aware of an incident in areas it regards as coming under its
jurisdiction will appoint the OSC and commence action in accordance
with this Plan.

N 101.3 A pollution incident, as defined in 105.1 of the Pla
from any source including vessels, refining, transfer or storage
facilities, or seabed activity is covered by this Annex.

N 101.4 A pollution incident, which although not a threat to
the areas of responsibility of both Parties' OSCs nevertheless is o
such a magnitude as to warrant a plea for assistance and/or the loa
of resources is provided for, with the proviso that the Party seeki
the aid shall pay all the costs of the other Party unless alternati
arrangements are made.

N 101.5 Response operations shall be funded in accordance wi
Section 202 of the Plan.

N 102 Involved Agencies and Designations

N 102.1 Canada

N 102.1.1 Federal Agencies

Department of Transport - Canadian Coast Guard -- Regional Director
Canadian Coast Gu
Western (RDCG Wes

AND

Chief, Emergencie
Canadian Coast Gu
Ottawa.

N 100 SCOPE

Department of the Environment -- Regional Director
Environmental Protection
Service, North West Regio

Department of National Defence -- Commander, Northern Regio
Headquarters.

Department of Indian Affairs and Northern Development -- Northern Environmental
Protection and Renewable
Resources Branch, Ottawa

AND

Director Northern Operati
Yellowknife

N 102.1.2 Governments of the Northwest Territories and Yukon

Deputy Commissioner, GNWT -- Yellowknife

Assistant Commissioner, Yukon Territories -- Whitehorse.

N 102.2 United States

N 102.2.1 Federal Agencies

Department of Transportation -- USCG Seventeenth Coast Gu
District

Department of the Interior -- 1. U.S. Geological Surve
2. Bureau of Land Manage
3. Bureau of Indian Affa
4. Fish and Wildlife Ser
Region 7

Department of Commerce -- National Oceanic and
Atmosphere Administratio
(NOAA)

Maritime Administration

Department of Defense -- U.S. Army Corps of Engin
Division and District Of
Sixth U.S. Army

U.S. Navy, Alaska Sea Fr
United States Air Force
Regional Representative.

Department of Health, Education and Welfare -- Region X

N 100 SCOPE

Environmental Protection Agency -- **Region X**

N 102.2.2 State Agencies

State of Alaska -- **Department of Ecology**

N 200 REPORTS AND COMMUNICATIONS

N 201 Rapid Alerting System

201.1 Any potential pollution threat to the other Party shall be reported to the appropriate agency of that Party without delay. Speed of reaction is vital to the successful outcome of an operation.

N 201.2 While it may take some assessment to decide whether or not to invoke the Plan, however, a warning that the Plan may be invoked should be given. This warning will not activate the Plan. It will, however, permit immediate preparation for the possibility of its invocation. The warning message shall be in the following format:

DTG

FM (sender)

TO (action addressee)

INFO (information addressee)

BT

UNCLAS

CANUSNORTH TOXINTOCSIN

1. GEOGRAPHICAL POSITION

2. ANY OTHER DETAILS

3. ACKNOWLEDGE

BT

Such a message will normally be originated by RDCG Western for Canada and the Commander, Seventeenth Coast Guard District for the United States and must always be acknowledged by the action addressee.

N 201.3 Invocation

This Plan shall be activated only by formal invocation. This will normally be done by a message from RDCG Western for Canada or from the Commander, Seventeenth Coast Guard District for the United

States. This message should contain at least the following information:

DTG

FM (sender)

TO (action addressee)

INFO (information addressees)

BT

UNCLAS

TOXIN

CANUSNORTH CONTINGENCY PLAN INVOKED AT (time GMT)

OSC (name)

HQ ESTABLISHED AT (name and telephone no.)

ACKNOWLEDGE

BT

In the acknowledgement message to the above, the receiving party shall report the name of the DOSC appointed and his ETA at the locality of the Headquarters established by the original messag of invocation.

N 202 Situation Report Requirements (TOXIN SITREP)

N 202.1 Up to date information on a spill which has justifi joint response activity is essential to the effective management an outcome of an incident. This information should be submitted by th nominated OSC to the JRT on the format shown below. TOXIN SITREP s be made as frequently as necessary to ensure that those who need to know have a full and timely appreciation of the problem and the pro to deal with the removal of that problem.

N 202.2 Standard Message Format

DTG

FM (sender)

TO (action addressee)

INFO (information addressees)

BT

UNCLAS

TOXIN SITREP (report number)

POLLUTION INCIDENT (identify the case)

1. SITUATION:

2. ACTION TAKEN:

3. FUTURE PLANS AND RECOMMENDATIONS:

4. CASE STATUS: (pends/closed)

BT

N 202.2.1 SITUATION: The situation section should provide the full details on the pollution incident including what happened, type and quantity of material, agencies involved, areas covered and threatened, success of control efforts, prognosis and any other pertinent data.

N 202.2.2 ACTION TAKEN: The action section should include a summary of all action taken so far by the responsible Party, loca forces, government agencies and others.

N 202.2.3 FUTURE PLANS: The plans section should include all future action planned.

N 202.2.4 RECOMMENDATIONS: Any recommendations by the OSC pertaining to the response should be included in the recommendation section.

N 202.2.5 CASE STATUS: The Status section should indicate "case closed", "case pending" or "participation terminated", as appropriate.

N203 Revocation

N 203.1 The decision to revoke the joint response to a particular incident shall be made by agreement of the OSC and the DOSC and then recommended to the JRT. The JRT chairman of the Part which originally invoked the joint response shall revoke it by message to the chairman of the other Party after consultation with him clearly establishing the date and the time, in GMT, of the cessation of the joint response. The requirement to consult in no way diminishes, the invoking chairman's prerogative to decide upo revocation.

N 203.2 Standard Message Format for Revocation

DTG

FM (sender)

TO (action addressee)

INFO (information addressees)

BT

UNCLAS

TOXIN

CANUSNORTH CONTINGENCY PLAN REVOKED AT (date, time--GMT at which joint operations will cease)

BT

N 204 Post-Incident Reports

N 204.1.1 The JRT may instruct each OSC involved to submit reports to the JRT on the incident, the actions taken and any observation or recommendations which need to be made.

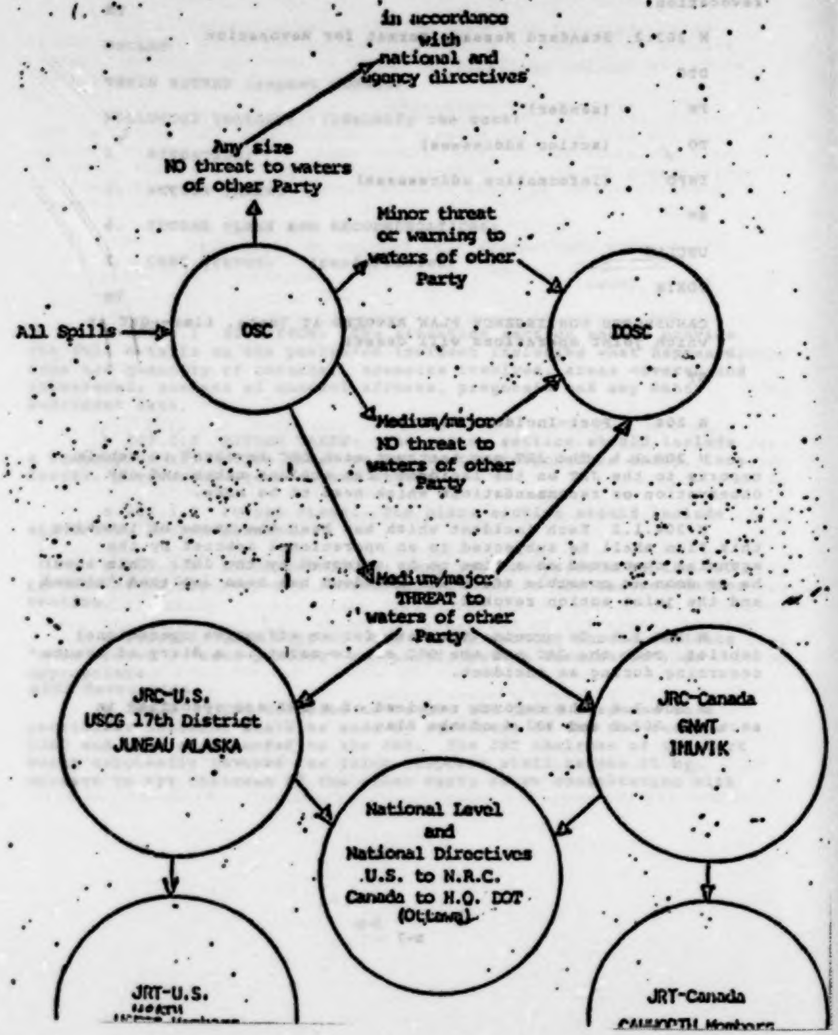
N 204.1.2 Each incident which has been the cause of invoking this Plan shall be subjected to an operational debrief by the agencies concerned at a time to be selected by the JRT. This shoul be as soon as possible after the incident has been declared "closed and the joint action revoked.

N 204.1.3 To provide the data for an effective operational debrief, both the JRT and the OSC are to maintain a diary of events occurring during an incident.

N 204.1.4 The reports required of a JRT are specified in sections 302.3 and 302.4 of the Plan.

N 205 SCHEMATIC OF RAPID ALERTING AND REPORTING SYSTEM

N 205.1 ALL POLLUTION INCIDENTS


in accordance
with
national and
agency directives
Any size
NO threat to waters
of other Party
Minor threat
or warning to
waters of other
Party
All Spills
OSC
DOSC
Medium/major
NO threat to
waters of other
Party
Medium/major
THREAT to
waters of other
Party
JRC-U.S.
USCG 17th District
JUNEAU ALASKA
JRC-Canada
GNWT
INUVIK
National Level
and
National Directives
U.S. to N.R.C.
Canada to H.Q. DOT
(Ottawa)
JRT-U.S.
JRT-Canada
CANNORTH Members

N 300 DESIGNATED JOINT RESPONSE CENTRES AND OFFICIALS

N 300.1 Joint Response Centres are located at sites where facilities are already available to provide the necessary support requirements to fulfill the provisions of the Plan. The JRT will normally assemble at one of the JRC's established in N 301. However, other sites have been identified as being suitable and are available for use at the discretion of the appropriate chairman of the JRT.

N 300.2 Officials holding certain offices in the appropriate agencies of each Party have been designated to serve as members of the JRT or as OSC's. A list of the offices concerned is contained in N 302 and N 303.

N 300.3 In addition to those represented on the JRT certain other agencies will have varying measures of involvement in some or all types of pollution incidents. Each of these agencies will prepare and furnish to the respective chairman of the JRT a list of names of those officials who have been designated as having a partial or total commitment in the warning system or execution of the Plan. These lists are to be forwarded before 1 June and 1 December of each year. The two chairmen will arrange to compile a joint list to be distributed on 1 January and 1 July of each year. These lists, including data on the members of the JRT and the OSC's will contain names, positions, home and business telepho numbers, office addresses and, where applicable, Telex and TWX numbers.

N 301 Joint Response Centres

N 301.1 United States: The U.S. Joint Response Centre will be located at

Rescue Coordination Center (RCC)
Seventeenth Coast Guard District
Federal Building
709 West 9th St.
Juneau, Alaska 99802

Telephone: 907-586-7340

N 301.2 Canada: The Canadian Joint Response Centre will be located at the:

Offices of the GNWT
Inuvik

Telephone: 403-879-2501

N 302 Joint Response Team

The Joint Response Team will consist of representatives from each Party as indicated in sections N 302.1 and N 302.2. The Regional Director CCG (Western) shall be the Canadian chairman; the senior U.S. Coast Guard member shall be the U.S. chairman. The chairmen may, if they desire, seek advice and information from agencies other than those represented on the JRT.

N 302.1 U.S. Members

Agency	Office	Position
USCG	Seventeenth Coast Guard District	Chief M Division
EPA	Region X	Director, Division of Water Programs

Corps	Alaska District North Pacific Division	District Engineer
DOI	Region X	Field Representati Pacific Northwes
DHEW	Region X	Disaster Assistanc Coordinator
NOAA	National Marine Fisheries Service Seattle, Washington	Assistant Director Environmental Conservation
Department of Environmental Conservation State of Alaska	Administrator	Deputy Director

N 302.2 Canadian Members

Agency	Office	Position
DOT	Canadian Coast Guard (Vancouver)	Regional Director Canadian Coast G
DOT	Canadian Coast Guard (Ottawa)	Chief, Emergencie
DND	Commander, Northern Region Headquarters	Operations Office
DIAND	Northern Environmental Protection and Renewable Resources Branch (Ottawa)	Director
DOE	Environmental Protection Service (Edmonton)	Regional Directo Northwest Region
GNWT	Deputy Commissioner's Office Yellowknife	

N 303 On-Scene-Commanders

The officials holding the offices designated below have been designated as OSCs and as appropriate.

N 303.1 U.S. On-Scene-Commander

Commanding Officer
Coast Guard Marine Safety Office
Anchorage, Alaska
(907) 265-5371

N 303.2 Canadian On-Scene-Commander

Regional Manager, Emergency Operations
Canadian Coast Guard
Vancouver, British Columbia
(604) 666-6011

Mr. **Wyatt.** I would like to go back one more time to the fact that although this would have assisted us in terms of response reaction, it would not have covered liability for the losses suffered so by those people who have been harmed by this incident.

It may not have been as bad, but there would have been damages, or potential damage done on which they could not have recovered?

Ms. **Hoinkes.** The same legal avenues for redress as are available to them now, and which many of them are pursuing, will be available under the plan and that will be unchanged.

Mr. **Wyatt.** Getting to the ability to recover, Mr. Walsh, you made the comment that you thought it inherently unfair that some folks could recover and others could not. You used the instance of the *Argo Merchant.*

Was there economic damage caused the people of Massachusetts by the *Argo Merchant*?

Mr. **Walsh.** There were damages alleged. At the present time, all citizens damaged by accidents of this type are protected by common law and can go to court and seek remedies.

We are talking about at what point do you decide to give one special group the benefit of improved statutory remedies when you don't give it to other groups. Right now everybody has an equivalent kind of protection. That is those that are——

Mr. **Wyatt.** Going back to my original comment, I think the situation is unique. Who do we recover from?

Mr. **Walsh.** Remedies have been sought from those who are alleged to have been involved in the negligence or whatever—Pemex, Permargo, and Sedco—by citizens in their lawsuit in court in Texas.

They have sued to get the damages from them.

The proposed legislation would create a wholly different compensation system. The question is, When does night fall on the old process and when does day begin on the new one?

At the present time, there are legal remedies in existence. We believe those remedies should be improved through a comprehensive statute that ought to draw a cutoff line as it must in any situation; but the people in Texas are pursuing their remedies through the courts.

That is not being denied to them.

Mr. **Wyatt.** Do you think the administration would have a different situation if they had gone to the Supreme Court and couldn't get any relief because there wasn't anyone to sue?

The Justice Department sued Sedco after 9 months, and Sedco is an American company.

Mr. **Walsh.** I don't know.

I remember one case in law school, the *Texas City* case, in which a ship loaded with fertilizer exploded on the Texas coast and killed quite a few people. It was found by the Supreme Court that the Government was sovereignly immune. At that point, the Congress stepped in and gave compensation to the people involved, through a special statute. These people had found that they had no protection at corporate law in that case.

This case is different. They have remedies and they are pursuing them in court.

How should they apply, across the board, or to one specific interest? In the Texas City disaster case where a government ship exploded, the Congress responded after it was proved there were no adequate common law or judicial remedies.

Mr. **Wyatt**. The reason I have some problems is that shortly after it happened, the Acting Attorney General of the United States, Mr. Civiletti, made a comment that it was ridiculous to sue a Mexican company.

Mr. **Walsh**. I didn't hear it.

The government or Pemex? Pemex has been sued before.

Mr. **Wyatt**. Why would the Attorney General of the United States make a comment like that?

Mr. **Walsh**. I wouldn't even care to comment on that.

Mr. **Wyatt**. Well, as the President was coming down the Mississippi, I think he made the statement that he didn't want to sue Mexico. That is one of his remarks.

I don't know whether you are familiar with that comment.

Mr. **Walsh**. I am not.

Mr. **Wyatt**. When the President of the United States and the Acting Attorney General of the United States make such comments, I question how we are going to get any cooperation from the Mexican Government.

Then you come and tell us, well, your remedy is to go back to the courts and sue the Mexican Government.

Mr. **Walsh**. I am saying that the corporations involved have been judged to be private corporations, therefore, they are available to be sued in the United States and their assets can be attached. There are assets of Pemex in the United States that can be attached.

In terms of whether to sue Mexico or not, you can interpret it either way. If the President said he wanted to sue Mexico, it may be that the Mexican Government would be so offended that they wouldn't help us out voluntarily. It is a question of how you want to approach it.

We are pursuing it in the manner we think we can.

There are remedies in the Federal courts to those that have been injured. It has not been proved that they have no remedy in common law. The State Department has done everything it can, given there will be problems in the negotiating field.

Mr. **Wyatt**. You say we have to beware of problems we have with the Mexican Government?

Mr. **Walsh**. I believe so.

Mr. **Wyatt**. One other area. Let us assume that this bill would include an oilspill fund for oil coming from Mexico with an import tax of 20 cents a barrel to pay for this particular problem.

Do you think the administration would still object to this legislation? That would be a situation whereby we would be allowing the oil coming from the area affected to reimburse the losses encountered by oil exploration in Mexico.

Would that make any difference?

Mr. **Walsh**. It seems that that is a piecemeal approach. The proposed spill fund would tax all oil that comes in at a certain level and spread it throughout the system and not just oil that may get to a certain area of the country.

If we had a comprehensive plan, oil coming from Mexico would be taxed in an equivalent rate to that which is coming from Kuwait, Indonesia, and Nigeria.

Mr. Wyatt. In terms of the Santa Barbara spill, we had someone to go to, did we not? The U.S. courts.

Mr. Walsh. In that case, we had a U.S. oil company doing business in the United States. Pemex is a corporation incorporated in the United States and doing business in the United States and it can be sued like any other corporation. You don't read about Pemex; you read about Union Oil. But Pemex is doing business in the United States and they can be reached.

Mr. Wyatt. In this country?

Mr. Walsh. If they are found to be liable.

Mr. Wyatt. And certainly no one would object to that suit being filed in Washington?

Mr. Walsh. Would anyone?

Ms. Hoinkes. I think you are expecting an answer.

There are foreign policy considerations relating to filing a suit against Mexico. We are looking at it closely. We are in communication with Justice about the proper litigating approach. We have not reached any determination with respect to any of the defendants other than Sedco at this time.

Mr. Wyatt. Well, there would be foreign policy implications, though, with respect to suits against Pemex, even if filed in the United States?

Ms. Hoinkes. I am speaking about U.S. claims when I speak. I am not referring to suits brought by private claimants. In fact, private claimants have already brought suit against Pemex.

Mr. Wyatt. In U.S. courts?

Ms. Hoinkes. That is right.

Mr. Wyatt. Doesn't that raise foreign policy implications?

Ms. Hoinkes. Not of an immediate and similar concern to me. We have no control and no appropriate role to play with respect to a private litigant's exercising his rights in pursuing his statutory remedies.

Mr. Wyatt. I might at this time inform the witnesses that questions will be submitted from the committee to the witnesses present here today that we would hope to receive written responses to.

Mr. Walsh, on page 6 of your written statement you say, "The administration's bill, H.R. 4566, and this committee's bill, H.R. 85, provide for reciprocal arrangements with foreign countries to pay for damages. Pressures for such arrangements would be minimized if such countries believed that Americans would be compensated by the U.S. Government either directly or through the use of existing funds."

Are you saying that today we have some arrangement under the legislation?

Mr. Walsh. Under the legislation.

It says that a foreign claimant can make a claim for damages to their property to the extent that reciprocal authority is allowed. In other words, if we had a spill here that went across to Canada, Canadians could sue under our program if we could go back and do the same in their courts.

They do not get access to our system unless there is reciprocity.

Mr. **Wyatt**. You think that legislation such as this would make it more difficult to have reciprocity agreements?

Mr. **Walsh**. No, it would be easier. We have already made a decision that you can come to our courts and proceed under our law. If you get damaged by an oil spill or blow out that occurred but we will not give you that ability unless you give us an equivalent right.

We feel we are offering something. All they have to do is come back and pick it up. We think it will foster reciprocity by making the first offer.

A similar thing was done in the Alaska pipeline bill. Citizens in Canada who would be injured by an oil spill, by oil coming through that system could get relief in the United States. That has been helpful in our relationship with Canada on this issue.

Mr. **Wyatt**. How does this legislation affect the fact that we would work in the future toward reciprocity?

We don't need the comprehensive bill to have reciprocity with Mexico?

Mr. **Walsh**. No. Without having to wait for the agreement and implementation, we make the offer and trigger it into our law if they provide reciprocity. As a matter of fact, we have created a statutory program for them if they pick up the offer of reciprocity.

Mr. **Wyatt**. You couldn't include that in the contingency plan?

Ms. **Hoinkes**. The contingency plan does not deal with this kind of issue. We will be looking at that kind of issue in our discussions of a whole range of environmental problems.

Mr. **Wyatt**. The contingency plan merely deals with the cleanup, Ms. Hoinkes?

Ms. **Hoinkes**. Yes, the cleanup itself.

Mr. **Wyatt**. All right. Thank you.

Are there any questions from the members of the committee? [No response.]

Mr. **Wyatt**. Thank you very much.

Mr. **Wyatt**. Our next witness is Mr. Edward E. Wolfe, legislative counsel for the National Shrimp Congress.

At this time I would like to ask that Congressman Hance's statement be entered into the record without objection.

Congressman Hance is from Texas. It will be provided at a later date.

[The following was received for the record:]

Statement of Hon. Kent Hance, a Representative in Congress From the State of Texas

Mr. **Chairman**. I would like to express my support for the Ixtoc I Oil Pollution Compensation Act of 1979 introduced by Mr. Wyatt. I think we can all agree that the disastrous economic repercussions of the Ixtoc I oil spill are and will continue to be felt by the residents of the South Texas Coastal Region. Passage of this proposal will ensure that these U.S. citizens are compensated for their losses, but it will not signal a lack of support of the efforts that are underway to obtain reimbursement from Pemex and the Mexican Government.

The likelihood of economic recovery in this area is severely hampered by speculation that changing Gulf currents will move the oil spill north again this spring. The tourist industry will be ruined for the spring and summer seasons. Having suffered for a portion of the previous season, I doubt that the industry will be able to survive reoccurring waves of the oil slick from Ixtoc I.

A most serious consequence of the oil spill has been the damage to shrimping and fishing activities on the Texas coast. The immediate effects on commercial and recreational fishing are evident, what we are not certain of are the long range impacts Ixtoc I will have on spawning grounds and fishing areas.

In short, passage of this legislation is essential if we are to prevent a major recession in this part of the country.

STATEMENT OF EDWARD E. WOLFE, LEGISLATIVE COUNSEL, NATIONAL SHRIMP CONGRESS

Mr. **Wolfe**. Mr. Chairman, it looks like the room is emptying out on us. There are obvious advantages and disadvantages to being the last witness of the day.

The disadvantage is that much of what I planned to say has already been said. However, the obvious advantage is that I have an opportunity to review and reiterate pertinent facts and bring home to the committee points that are very, very important to the shrimp industry.

More importantly, I believe I can close this hearing in support of H.R. 5577.

Much of what I was going to say has already been said, so I will try to delete portions that have already been covered and ask that my entire text be included in the record.

For the record, my name is Edward E. Wolfe, and I am testifying today on behalf of the National Shrimp Congress.

The National Shrimp Congress is a national association with its principal headquarters in Washington, D.C. Our membership consists primarily of shrimp producers from the Carolinas along the coast to Texas, including the Texas Shrimp Association, Florida Shrimp Association, Louisiana Shrimp Association, and the American Shrimp Boat Association.

Thank you for allowing me to testify today. We appreciate the opportunity to support Mr. Wyatt and Mr. de la Garza's legislation. The National Shrimp Congress strongly endorses H.R. 5577.

As a result of the Merchant Marine and Fisheries Oversight hearings on the impact of the Ixtoc I spill held in Corpus Christi, Tex., in September, we believe, the National Shrimp Congress, it became apparent that immediate statutory relief, including economic damage assessment measures was needed to compensate injured parties for the oil spill damages.

Although the Ixtoc I blowout resulted in the world's largest oil spill, this disaster was not insurable nor covered by conventional relief programs. Since the blowout did not occur on the Outer Continental Shelf, the Offshore Oil Pollution Compensation Fund was not activated under the Outer Continental Shelf—OCS—Lands Act Amendments of 1978. Therefore, as we see it, victims of the spill have no immediate means to recover damages.

H.R. 5577 incorporates similar provisions of the OCS Lands Act Amendments Offshore Oil Pollution Fund and also provides the necessary machinery to accumulate data, assess damages and compensate victims for a disaster caused by a foreign industry. Although the State of Texas has filed a $10 million negligence action against the Mexican drilling contractor and the owner of the rig, there is no certainty that compensation will, in the near future, be forthcoming.

Also, there are no existing international agreements between the United States and Mexico covering such a catastrophe. To complicate matters further, the U.S. State Department and the shrimp industry have been stymied in their efforts to negotiate a United States/Mexican shrimp agreement, and our fleets will be unable to fish within the Mexican 200-mile zone as of December 31, 1979. We believe that existing diplomatic mechanisms, complicated by pending lawsuits against an instrumentality of the Government of Mexico, preclude the possibility of successfully negotiating damage claims arising from the Campeche Bay oilspill. Congressman Eckhardt alluded to this earlier today when he spoke to the burden of proof for proving negligence, and also the burden of proof if the parties did, in fact, cause the alleged injuries.

During the Corpus Christi, Tex., oversight hearings on the impact of the Ixtoc I spill, Ralph Rayburn, executive director of the Texas Shrimp Association—TSA—testified that a monitoring process of the oil spill in the gulf was imperative to the survival of the gulf shrimp industry. The TSA, consisting primarily of shrimp producers operating in the Gulf of Mexico, is the most valuable fishery in the State of Texas. The National Marine Fisheries Service in 1978 estimated the value of the Texas shrimp industry at approximately $142 million. Unless the Congress acts immediately in enacting legislation to assess existing and long-range economic and environmental damage from the spill, the potential impact on next year's shrimp larvae migration will be devastating. The main shrimp season off the Texas coast is July-December. We project the full economic damage of the spill during our prime harvesting season in 1980.

The year 1979 has not been a banner year for the gulf shrimp fishery. Production is down approximately 27 percent and factors such as heavy rains in the Galveston Bay have resulted in a declared disaster area, thereby reducing the brown shrimp which is our primary harvestable species. Additionally, increased fuel costs have exacerbated the financial burden on the shrimp fisher, and, of course, the long-range effects of the Ixtoc I blowout remain to be seen. The damage assessment provision of the proposed legislation, section 10, would assist the industry in projecting the impact of the oil discharge, including loss of and use of natural resources.

It is the opinion of some scientists that oil from the blowout has, in some locations, sunk to the bottom of the gulf. This would, undoubtedly, create a die-off of larvae shrimp affecting next year's crop and future crops.

During Congressman Eckhardt's statement, he alluded to the red fish and the shrimp larvae potential problems and the seriousness of the situation caused by the Ixtoc I oilspill.

In addition, oil on the surface has caused dislocation of shrimp vessels, thereby causing shrimpers to expend more time, effort, and fuel locating shrimp in other areas. Whether the oil sinks to the bottom or remains on the surface, the impact of the spill has the potential of affecting next year's crop. Shrimp spawn in the gulf and once the eggs have hatched, the small shrimp go through three larva stages while riding the currents into the bay and estuarine areas. After a few months, these subadult shrimp return to the offshore areas to complete the cycle. Should toxic substances resulting from the spill be present in the water during larva migration, future shrimp crops could be seriously impacted by larvae dieoffs and/or reduced growth rates.

Mr. Chairman, in summary, we believe that while a comprehensive approach to oilspill compensation would be in the best interests of oil spill damage victims, the environment and natural resources, immediate relief is necessary to assure damage assessments, including baseline studies and continuous monitoring of the shrimp fishery and organisms that associate with shrimp in the food chain. Such a damage assessment mechanism is essential in determining the long-range economic and environmental effects of the Ixtoc I oilspill.

As has been mentioned repeatedly, this is a unique situation, whereby damage to the environment and natural resources may appear next year or in subsequent years. We must immediately begin looking at the long-range potential of the Ixtoc I spill.

I might make one point in respect to the State Department's testimony and NOAA's testimony in their reference to a single incident and the piecemeal approach we talked about. I am not sure how this can be labeled a single incident when we are talking about the world's largest oil spill. We must do something about it immediately. We have got to have the mechanisms in place. Time is of the essence.

We don't know what to expect next year, but we have to have this machinery in place if the worst should happen. We need the data to support this.

This concludes my testimony.

Mr. Chairman, I would be glad to respond to any questions that you or your staff may have.

Mr. **Wyatt**. Mr. Wolfe, thank you very much.

I want to say, first of all, we appreciate your patience. I know there were some of us on the committee that requested your testimony, and I appreciate very much the fact that you stayed here until this late hour.

Mr. Ratti, do you have any questions?

Mr. **Ratti**. I don't know anything about shrimp except that they taste good.

Mr. **Wolfe**. And they are very, very expensive, I might add.

Mr. **Ratti**. I do not understand your statement on page 3 where you say, "Unless the Congress acts immediately in enacting legislation to assess existing and long-range economic and environmental damage from the spill, the potential impact on next year's shrimp larva migration will be devastating."

Mr. **Wolfe**. By that, sir, I mean that we need damage assessment measures immediately to determine the long-range impact or the impact next year on this shrimp migration.

In that area, I can factor in different points including dislocation of the shrimping vessels. This year we have, as was brought out earlier, moved our boats, I believe it was farther south, I am not sure, to the Galveston Bay area, because of the problems we were having due to the oilspill.

Mr. **Ratti**. What I don't understand, I guess, is this: Do you mean the damage assessment is in some way going to prevent damage to the shrimp or where the shrimp will be so you can move your vessel?

Mr. **Wolfe**. We are going to move our vessels.

Mr. **Ratti**. Doing a damage assessment will have no effect on whether the shrimp die or multiply?

Mr. **Wolfe**. I think the damage assessment study, as I stated earlier, would put a mechanism in place that would enable us to know where we will be going.

As far as your question directly affecting the shrimp, I am not sure a damage assessment would directly affect shrimp migration but I believe there would be an indirect impact. We need that particular provision (damage assessment) right now more than we have ever needed it.

Mr. **Ratti**. That is all.

Mr. **Wyatt**. Are there any further questions?

[No response.]

Mr. **Wyatt**. Mr. Wolfe, thank you very, very much for your testimony today. We very much appreciate it.

Mr. **Wolfe**. You are certainly welcome.

Mr. **Wyatt**. Are there any other witnesses for or against H.R. 5577?

If not, the committee is adjourned.

[The committee was adjourned at 3:05 p.m., subject to the call of the Chair.]

SHIPBOARD ASBESTOS EXPOSURE

THURSDAY, JANUARY 24, 1980

House of Representatives,
Subcommittee on Coast Guard and Navigation,
Committee on Merchant Marine and Fisheries,
Washington, D.C.

The subcommittee met, pursuant to notice, at 1:27 p.m. in room 1334 Longworth House Office Building, Hon. Mario Biaggi (chairman of the subcommittee) presiding.

Present: Representatives Biaggi, de la Garza, and Anderson of California.

Staff present: Ricardo A. Ratti, chief counsel; Larry Mallon, counsel; Cyndy Wilkinson, clerk/research assistant; and John Bruce, minority counsel.

Mr. Biaggi. The meeting is called to order.

The Subcommittee on Coast Guard and Navigation meets today to determine the threat to the merchant marine and the Coast Guard personnel posed by shipboard exposure to asbestos fibers.

While asbestos has been used for thousands of years, the modern extensive industrial use of it dates from about 1880. It was not until a half-century later, however, that the first suspicions arose that exposure to asbestos fibers could cause lung cancer.

Beginning in 1964 an expansion occurred in the number of studies of asbestos and its effects on the health of people exposed to it. Because of the extensive use of asbestos materials in ship construction several of those studies focused on shipyards. They documented a disproportionate number of lung cancer and asbestosis cases among shipyard workers.

After analyzing these and many other studies, the National Institute of Occupational Safety and Health determined that there is now conclusive evidence that exposure to asbestos fibers causes cancer and asbestosis in humans.

While a great deal is known about asbestos and its effects, as late as 2 years ago knowledgeable persons in the field admitted that there were a mass of unanswered questions surrounding it.

The goal of our hearing today is modest. We would like to get answers to three out of that mass of unanswered questions. Those questions are:

What is the present degree and extent of the asbestos hazard to merchant marine and Coast Guard personnel in their working environment?

What is being done about this hazard—by the Government, by private industry, by labor unions?

Is additional Federal legislation needed on this subject—or is existing law sufficient if properly enforced?

As you can see from these questions, we are taking it as accepted that exposure to asbestos fibers is dangerous. I don't think we need further evidence of that. What we do need, however, is information on the extent to which shipboard personnel are exposed to asbestos fibers and the degree of health risk resulting from that exposure.

Are seamen subject to the same risks as shipyard workers? Are there differences between the shipyard and shipboard environments that either significantly increase or decrease these health risks?

We would also like to inquire into the Federal Government's jurisdiction in this area. Which agency or agencies are responsible for regulating asbestos exposure in shipyards and on board merchant vessels—is there any gap or overlap in jurisdiction? Have the responsible agencies taken effective action?

In short, we would like to know what has been done so far to protect mariners from the effects of exposure to asbestos fibers—what more needs to be done—and by whom. If we can get answers to these questions today, this hearing may make an important contribution to the health of maritime workers.

We also have a statement from the chairman of the full committee, Congressman John M. Murphy. I ask unanimous consent that it be introduced into the record in its entirety.

Without objection, so ordered.

[The following was received for the record:]

STATEMENT OF HON. JOHN M. MURPHY, CHAIRMAN, COMMITTEE ON MERCHANT MARINE AND FISHERIES

Today the Subcommittee on Coast Guard and Navigation begins an examination of the problems of asbestos and the use of this substance in the ships of our Merchant Marine and the United States Coast Guard. The focus of the inquiry is on the health of those that serve in those ships. Through testimony and documentary evidence, we intend to define the dimensions of the problem, assess the threat to seafarers, and determine what is being done by Federal agencies and industry to safeguard the health of those who serve at sea.

Asbestos was for many years deemed to be an essential substance for shipboard applications. Its properties made it particularly useful as insulation on piping and machinery operated at high temperatures. Also, it has been widely utilized in ship construction because of its fire resistant qualities. Construction materials made of asbestos fibers bonded with special cement do not contribute as fuel to a shipboard fire and help retard a fire's progress through shipboard spaces. For many years, asbestos was the only material with these qualities available to ship designers and builders. Hence, asbestos-based materials came to be used worldwide to construct safer and more efficient ships. This met a crucial need, made dramatically apparent by such incidents as the *Morro Castle* disaster, where too much reliance had been placed on active fire fighting systems to the exclusion of fire-resistant construction materials.

In recent years the dangers of asbestos to human health have become apparent, both in applications in construction of buildings ashore and in shipyard activities involving asbestos-based construction and insulation materials. The chief danger seems to arise when humans are exposed to an environment where asbestos is present in quantity in fibrous form. Long term effects were first observed on workers in asbestos mines. Research disclosed that the dangers were present wherever asbestos fibers were floating in the air in the work place. In shipyards, where asbestos lagging and construction materials were handled and worked, workers were regularly exposed to the dangerous dust.

Mesothelioma, a form of lung cancer rare in the general populace, was found to develop at alarming rates among workers exposed over time to dust laden atmospheres. Asbestosis, another debilitating disease, occurred among such workers with ominous frequency. With general publication of these facts in the 1960's, reaction against the use of asbestos in ship construction gathered momentum.

Denmark was perhaps the first country to act boldly—no asbestos was to be used for ship construction. This view was quickly adopted across Europe. The U.S. Coast

Guard, in its regulatory role regarding marine safety, put out the word to suppliers of construction materials: Develop fire resistant materials that do not use asbestos. With advances in chemistry and materials development, products as effective as asbestos-based materials could be devised to escape the dangers to human health that asbestos posed.

Now we must assess where we are and where we need to go to assure the safety and health of our seafarers. It may be that existing asbestos-based materials that encapsulate the deadly fibers in cement pose no danger in normal shipboard operations. It may be that the only significant dangers in the maritime field arise in shipyards, where dust producing activities are routine. We may find that responsible government agencies are doing all that needs to be done to eliminate the dangers, both short term and long term. But we must establish the state of affairs as it exists today. And, where we deem legislative action and further oversight are appropriate, we must act resolutely and dispositively. We must meet our responsibilities with respect to the health and welfare of seafarers, and we must assure that others having like responsibilities are discharging them effectively.

I comment the Subcommittee on Coast Guard and Navigation and its chairman for convening this hearing today. I look forward to hearing the testimony on this most important subject, and I share Chairman Biaggi's determination to establish what needs to be done and to act accordingly.

Mr. BIAGGI. Our first witness is Dr. Robert N. Jones, associate professor of medicine, pulmonary diseases section, Tulane University School of Medicine.

Dr. Jones.

STATEMENT OF DR. ROBERT N. JONES, ASSOCIATE PROFESSOR OF MEDICINE, PULMONARY DISEASES SECTION, TULANE UNIVERSITY SCHOOL OF MEDICINE, NEW ORLEANS, LA.

Dr. JONES. Mr. Chairman, members and staff of the subcommittee:

My name is Robert Jones, and I am associate professor of medicine at Tulane University in New Orleans. I am a specialist in diseases of the chest, and serve as a senior investigator in a research unit supported principally by grants from the National Institutes of Health, and dedicated to the scientific study of occupational lung diseases.

One of my particular interests has been the use of the chest X-ray, not only in the diagnosis of disease in individual patients, but also in survey work. Chest X-ray surveys may point to unexpected hazards affecting groups of workers previously thought to be employed in relatively safe occupations.

Working with several other physicians in our research unit, I have recently completed such a survey. We examined the chest X-rays of over 6,000 members of the national Marine Engineers' Beneficial Association (MEBA). The results constitute persuasive evidence of significant asbestos exposure in this group of merchant seamen.

The national MEBA maintains diagnostic centers in New Orleans, San Francisco, New York and Baltimore. These are not primary treatment facilities, but serve more as health screening units and as centers for periodic examination to determine fitness for duty at sea. The men using these centers are therefore a representative sample of the union membership, not a selected group of sick persons, such as might be found in clinics or hospitals.

Our concern with this group of men began in the midseventies. Several physicians who had completed their internal medicine training at Tulane were working at the MEBA Diagnostic Center in New Orleans. They noticed that the routine chext X-rays of some of the union members resembled X-rays we used in teaching the radiographic appearance of asbestos effects. They began to bring these films to us for review, and we saw enough abnormal X-rays to arouse our suspicions that asbestos exposure might be a significant risk to men working in the propulsion spaces of merchant ships.

What those X-rays showed was scarring and calcification of the pleura, the membranes covering the surface of the lungs, and lining the chest cavities. Although some kinds of pleural scarring result from infections or injuries, the types and locations of scars in these X-rays were those recognized as due, in almost all cases, to inhaled asbestos dust.

Our first step was to discuss these X-ray findings with MEBA officials. The union's president, Mr. Jesse Calhoon, authorized a survey of all chest X-rays held in their New Orleans Diagnostic Center.

The results provided strong indication of the existence of an asbestos problem. The board of trustees of the MEBA Health and Welfare Plan then authorized enlarging the survey to include the latest chest X-ray of each member examined at other diagnostic centers.

In my written submission, I have given some written details of the design and conduct of the survey.

Since our experience with the New Orleans MEBA films had been that a negligible percentage of X-rays showed scarring inside the lungs—a condition of which inhaled asbestos is only one of many causes—we decided to assess asbestos exposure of the entire sample by estimation of the prevalence rates of several pleural abnormalities as they are defined by the International Labor Office Chest X-ray Classification.

These abnormalities were pleural thickening, pleural plaques, and pleural calcification. They are types of pleural scarring and are relatively specific indicators of inhaled asbestos, provided certain rules are followed. These rules include not counting a scar adjacent to a rib fracture or other sign of some cause obviously unrelated to dust; and not counting scars in certain locations in the chest where asbestos effects are not ordinarily seen.

Of the original 6,671 films, 295 were eliminated because one or both readers judged them technically unsatisfactory. The final tabulation of 6,376 films showed that I classified 19.8 percent of all films as showing one or more of the specified pleural abnormalities: and the other reader—Dr. Morton Ziskind or Dr. Manuel Rodriguez—classified 16.6 percent of the films as positive. Of the films 11.9 percent were independently classified as positive by both readers, and this is our estimate of the prevalence of the specified pleural abnormalities in marine engineers.

As an indicator of the stringency of our requirements, it should be noted—from a table in the written submission—that the estimated rate would rise to 24.5 percent if a positive judgment was required of only one of two readers, rather than two of two readers.

The 11.9 percent prevalence rate of pleural abnormality is quite high in relation to populations known to have substantial asbestos exposures. In a study of several thousand asbestos miners and millers in Quebec, the overall rate of "any pleural change" was 10 percent. In an asbestos factory population described in the same report, the overall rate for any pleural change was 4.8 percent. In a random sample of 2,442 men working in British naval shipyards, the estimated prevalence of pleural abnormalities was only 3 percent.

Other studies have given higher estimates of prevalence, but have usually examined volunteers only. Since volunteer groups will be filled with persons who either suspect or know that they suffer from chest disease, such studies will produce overestimates of disease prevalence, compared to surveys of all workers or a random sample of all workers.

Comparison of the 11.9-percent abnormality rate in marine engineers to similar or lower rates found in comparable surveys is provocative. Asbestos miners, millers, and factory workers have continuous exposures to asbestos fibers; and shipyard workers are known to have significant risks from occupational asbestos exposures, including elevated mortality rates from asbestos-related diseases.

Our results show that an unusual proportion of marine engineers bear detectable signs of inhaled asbestos. The pleural abnormalities in question, particularly pleural plaques and calcification, usually take 15 or more years to develop. The logical inference is that substantial numbers of marine engineers were exposed to significant concentrations of asbestos fibers in the past. Because of the lag-time required to develop signs of inhaled asbestos, these data cannot be used to estimate current exposures in marine engineer work.

Recently reported measurements, made by the United Kingdom Factory Inspectorate, show just how large the exposures can be in one operation; the removal of old pipe lagging—15 percent asbestos—in boilerrooms and enginerooms. Average levels in each location were over 90 fibers per milliliter, and maximum levels were 220 and 490 fibers per milliliter.

In other words, the observed fiber concentrations were from 45 to almost 250 times the current exposure standard of two fibers per milliliter.

It is true that most of the pleural abnormalities found in this survey will prove to be benign; that is, they are not expected to interfere with breathing, nor do they tend to become cancerous. They are, however, markers of asbestos exposure; and that exposure has been associated, in other worker populations, with increased risk of fatal asbestos-related diseases, including cancers.

The risk of contracting fatal diseases must be assessed by mortality study, and preliminary planning for such a study of MEBA members is underway.

Regardless of the results of further study, however, this X-ray survey supports two courses of action. The first is to reduce asbestos exposures to the lowest achievable levels. A step toward the ultimate solution has been taken with the substitution of other materials for asbestos in merchant ships delivered by American shipyards in the late 1970's. Sources of asbestos exposure will remain on older ships, and perhaps, on newer ships built or repaired in foreign shipyards. This means that for some years to come the men working with insulation in enginerooms and boilerrooms will need to follow careful work practices and use respiratory protection devices.

The second course of action is to recognize that marine engineers and others working in ship propulsion departments have held jobs involving asbestos exposure. Those among them, however many or few, who become sick or who die from diseases possibly caused by asbestos, deserve to have this occupational exposure considered as it relates to compensation.

I now express my gratitude and that of my colleagues at Tulane Medical School for the opportunity of presenting our research findings and our opinions. We join many others in hoping that these hearings result in effective contributions to the health and welfare of merchant seamen.

Mr. BIAGGI. Thank you, Dr. Jones.

On page 2 you make reference to the significant risk of men working in the propulsion spaces of merchant ships. You imply by that statement that that is the only area, that that is the major area of risk?

Dr. JONES. That was the group of men we derived our findings from. I have no reason to know, or to suspect, even, that others working on board ship were exposed to the same hazard.

Mr. BIAGGI. Is the hazard on merchant ships such that all asbestos should be immediately removed, or can the danger be eliminated by appropriate safety precautions and proper worker practices?

Dr. JONES. I am not completely competent to answer that question. I can give an opinion based on a hypothetical situation. If it is found that the only significant concentration, high concentration of asbestos fibers, results from unusual work on parts of the ship that contain asbestos, if this occurs only very infrequently, if the entire ship is not soiled with asbestos fibers, which stay suspended in the air for a long period of time, then it may be possible for the men who are doing the work and who are exposed to the hazardous concentration, to either engage in work practices that keep the asbestos down, or protect themselves with various types of breathing devices; and it may therefore be possible to limit their exposure, or to work safely with the asbestos.

I think the ultimate solution is obviously replacement, but whether to go out and tear out all the asbestos presently in merchant vessels is a question beyond my competence.

Mr. BIAGGI. Based upon your studies, and experiments, regarding asbestos-related health hazards, in your professional judgment does occupational exposure to asbestos in the shipboard setting warrant the adoption and enforcement of asbestos control measures at the present time?

Dr. JONES. I think the levels I quoted, documented by the British, show that exposures can be extraordinarily high, much higher than OSHA-prescribed exposure limits today.

It is obvious that exposures of that magnitude have to be prevented. How they are to be prevented I am not going to try to answer.

Mr. BIAGGI. When does the hazard occur? From deterioration of asbestos pipe coverings?

Dr. JONES. I don't think it has been conclusively shown that there is no hazard from material that might spontaneously flake off and be carried around the ship. It has been shown that working on it and ripping it off and the reapplication of insulating materials produce extraordinarily high levels.

The Maritime Administration study will show whether spontaneous flaking off will produce high enough levels to be hazardous.

Mr. BIAGGI. What dose response level, in your judgment, constitutes a significant risk to the health of shipboard personnel?

Dr. JONES. I think any response level, in the sense of having detectable abnormalities on a chext X-ray of a sizable proportion of workers in any situation, suggests that the group has had a hazardous exposure; but the question relates to how many marine engineers will contract excess lung cancers from asbestos exposure, and that question cannot be answered by the type of study we have done.

We have only discerned that a hazard exists, and it is necessary to look at the mortality experience of a selected cohort of exposed persons to see if their mortality rates differ from the general population. If they have excess lung cancers or some other cause of death related to asbestos, then in retrospect you can say, certainly, they were not only exposed to a hazardous substance, but in fact, it killed a certain proportion of them.

Mr. BIAGGI. I think it is accepted that asbestos fire board is causally related to cancer, and is a high cancer risk. Assuming this, what would you prescribe as a recommended course of conduct with relation to education, medical surveillance and exposure control practices, to avoid or reduce significant health risks to shipboard personnel?

Dr. JONES. I still feel incompetent to talk about control, because it is a political issue, not a medical issue at all. How you decide to prevent exposure is up to society.

The exposure itself is bad, and I believe that it ought to be eliminated. Where it is humanly possible to eliminate exposure to asbestos, then we should do it.

Mr. BIAGGI. You used the term "humanly possible." Given the premise that you can't eliminate it completely, what level of exposure would you establish or adopt as acceptable to minimize risk?

Dr. JONES. I don't know the answer to that, sir.

Mr. BIAGGI. Do you think that is an important question?

Dr. JONES. I think it is an important question where people have got to be exposed to some level of asbestos. I am not at all sure that that is the case in the merchant marine.

Mr. BIAGGI. Mr. Anderson?

Mr. ANDERSON. Thank you, Mr. Chairman.

Dr. Jones, what do you know about the use of sputum cytology in the protection from asbestos-related diseases?

Dr. JONES. There are two items there. In one instance asbestos bodies may appear in the sputum, and this serves as an indication of past exposure; but the sputum cytology examination is for the detection of lung cancer.

Lung cancer occurs in the general population, but with increased frequency in people who have had asbestos exposure.

Mr. ANDERSON. Is it effective as a method of testing?

Dr. Jones. It has not been shown effective in saving lives of large numbers of lung cancer victims. If you have a sputum cytology which is positive, there is a cancer present.

The large screening programs, such as have been evaluated by the Mayo Clinic, have not been shown any benefit from screening with sputum cytology.

Mr. Anderson. If the individual does not have cancer, but does have something on the lungs, what would the sputum cytology show then?

Dr. Jones. Not cancer cells, maybe asbestos bodies which are coated fragments of asbestos fibers. However, many people will have the fragments in the sputum who do not go ahead and develop lung cancer.

The existence of the fiber fragments in the sputum is only an indication that exposure has occurred.

Mr. Anderson. As dangerous as asbestos exposure is, it is, I believe, 92 times more likely to result in disease if the individual is exposed to smoking. Would you feel that a prohibition should be placed on smoking in the work areas?

Dr. Jones. That is a little out of my sphere of competence. The figure you quoted has been revised. It was based on Dr. Selikoff's work with asbestos insulators. Smoking asbestos workers have 60 times, perhaps, the risk of contracting lung cancer as the nonsmoking nonasbestos exposed worker.

Mr. Anderson. Then my 90 figure should be cut down to 60?

Dr. Jones. It is still a horrible figure. I don't know how to approach the problem of smoking. I know that some corporations have attempted to recruit only nonsmokers in jobs involving exposure. Others have tried to ban smoking on the job, or entirely. It is a social question.

Mr. Anderson. I wanted you to get on the record identifying the facts that with smoking, it is 60 times more dangerous as a result of asbestos exposure.

Dr. Jones. That is for lung cancer, yes, sir.

Mr. Anderson. Thank you, Mr. Chairman.

Mr. Biaggi. We have a communication from the Comptroller General of the United States. He states that there are two standards to be considered, the OSHA standard in force dealing primarily with asbestosis, which is not strict enough to deal with the cancer risk and a stricter standard recommended by NIOSH which could be adopted.

To put it a different way, a stricter standard equates to a lower level of asbestos fibers in the environment. That is an important consideration.

In the light of that, I think I can anticipate your response, in the light of your research and what is known about exposure prevention, we should have your response on the record.

In the light of that, which standard would you recommend?

Dr. Jones. I have not personally engaged in research that would relate to which standard to use. I think for what is before the committee today, and what concerns me about the marine engineers, it would be most prudent to adopt the stance that no exposure, if that is feasible, should be the goal.

Since it has proven possible to deliver merchant vessels containing no asbestos in the last 2 to 3 years, it would seem that the ultimate control in the situation that I am here to testify about would be total exclusion of asbestos from this working environment.

It is just like the other gratuitous exposures to asbestos, such as in hair dryers. There is no need to have asbestos in hair dryers. Hair dryers can be produced that are perfectly safe and effective, and that contain no asbestos.

If the same applies to merchant vessels, that is what we should aim for, and not the institution of some exposure limit if the exposure is gratuitous.

Mr. **Biaggi.** Is there an equivalent to asbestos for shipboard thermal insulation?

Dr. **Jones.** I don't know. I know there are certain substances that can serve as substitutes in certain applications, but I don't know all the applications of asbestos on merchant vessels, and I am not competent to answer the question.

However, it seems that since American shipyards are able to deliver ships with no asbestos, substitution must be possible.

Mr. **Biaggi.** If I recall correctly, you said that the major sources of asbestos fibers were in vessel construction in shipyards.

You did not have a conclusive position on the flaking of covered pipes?

Dr. **Jones.** That is right. I don't think that the measurements have been made. I think that the study that is going to be executed by the Maritime Administration is an attempt to answer the question of whether, in ordinary operations, merchant vessels that contain asbestos really provide a significant amount of asbestos fiber in the air in the general spaces in the ship, not just in the engineroom or boilerroom.

So the question cannot be answered on the basis of any data yet.

Mr. **Biaggi.** Mr. Bruce.

Mr. **Bruce.** I think you possibly answered my question, Dr. Jones.

Do you know whether there exists a reliable process for continually monitoring conditions on the ship, either by shipboard personnel or by the Coast Guard?

Dr. **Jones.** Actually, part of the Maritime Administration study is a feasibility study for long-term monitoring of shipboard conditions with respect to asbestos in the air. I don't have the results of more than just a brief portion of that study.

Long-term air sampling techniques exist, and are employed in most of the civilian and land-based operations where there is an asbestos hazard. There also exists capability of monitoring individuals by personal samplers, and this may be important if, as I suspect, large asbestos emissions on board ship are very restricted in time, and space.

That is, they occur intermittently. They occur when persons may do underway repairs on steam lines. Under ordinary operations, the exposures may be minimal. There exists a technology for monitoring the general air quality on ship, and for monitoring individual exposures, and I suggest that both be done until we know where we stand on this question of whether there is a low-level flaking off of asbestos that provides a hazard to everyone on board ship.

Mr. **Bruce**. I assume, then, from what you said, that there isn't a process for day-to-day monitoring so that you can detect changes in conditions on board ship?

Dr. **Jones**. There is, but I don't think it is the sort of thing that can be applied routinely by everybody on ship. It is a laborious business to monitor for asbestos fibers. In the context of a study or survey, it can be done, but asbestos fibers have to be collected on filters, and examined under phase contrast microscopy by experienced persons.

The best thing you can do when you are aboard ship to learn whether you have a hazard is simply to ascertain whether the insulating material on it is asbestos or not.

Mr. **Bruce**. Thank you.

Mr. **Biaggi**. Mr. Anderson.

Mr. **Anderson**. Just a followup on that.

In the case of the Navy, they tell us that on their vessels, 30 to 50 percent of the asbestos insulation will never be touched during the useful life of the ship except for painting or making minor repairs to the lagging or cover material.

So there is asbestos on the ship, which if left intact, should pose no hazard on the ship or for those working in the shipyard. Do you see any need for eliminating material when the only danger would be to the workers taking it out?

Dr. **Jones**. If that may be presumed to be the case, then it certainly is a point for your consideration. Just how dangerous the levels are is shown by the work cited in my statement here that when you do remove lagging, even a limited amount of lagging from a pipe, in order to make underway repairs, the levels of fibers scattered into the atmosphere are enormous.

You must, by work practices and personal protection, prevent men from being exposed to these high levels. If that can be done, and if it is true that the only exposures occur with the tearing off of insulation; if it is true that the men doing that can be prevented from inhaling asbestos fibers, then the answer to your question is no.

Mr. **Anderson**. In the shipyard, when work is being performed in asbestos-contaminated areas, fibers are liable to be flying anywhere. It is not just the workers in the immediate area that may be exposed, but even office workers may be exposed.

What do you think can or should be done to protect other workers? The Navy has found it convenient and safer to do some of this kind of work at night when there are less people around to be exposed to flaking pipes. Is this a common practice in other shipyards around the country?

Dr. **Jones**. I don't know anything about shipyard respiratory health, insofar as measures taken to protect people. I am not an industrial hygienist. I am not competent to comment on that.

Mr. **Anderson**. You wouldn't be able to comment on how dangerous it would be to people working near the site of asbestos exposures?

Dr. **Jones**. Yes, from the medical literature, it is apparent that workers in shipyards who don't have nominal exposure may come down with disease.

Mr. **Anderson**. Even people at home who are not working, but who are exposed to the fibers brought home by the workers, are contaminated? The workers clothing becomes contaminated with the fibers and thus, it is brought into the home.

Dr. **Jones**. That has been shown, that people can carry home asbestos fiber on their clothing, and their wives inhale it and in some instances, their children are exposed to it in that manner.

They have developed asbestos-related disease.

Mr. **Anderson**. Thank you.

Mr. **Biaggi**. My understanding is that the Navy takes special precautions in connection with this problem in that they generally seal off the area in question, and they also do not do repair work while they are underway unless it is absolutely necessary. They do most work in port.

They may also require the use of supplied air, special clothing and other devices, but even those precautions are not completely satisfactory.

Dr. **Jones**. If they are not satisfactory, then the method of dealing with the problem is not satisfactory. All my answers to the hypothetical questions of what should or should not be done are based on the assumption that the measures will work.

If we cannot assume that working practices and respiratory protection will prevent men from inhaling asbestos fibers, then we should fall back on the elimination of asbestos from the working environment.

Mr. **Biaggi**. Thank you, Dr. Jones.

We will have a 10-minute recess.

[The following was received for the record:]

STATEMENT OF ROBERT JONES, ASSOCIATE PROFESSOR OF MEDICINE, PULMONARY DISEASES SECTION, TULANE UNIVERSITY SCHOOL OF MEDICINE

My name is Robert Jones and I am Associate Professor of Medicine at Tulane University in New Orleans. I am a specialist in diseases of the chest, and serve as a senior investigator in a research unit supported principally by grants from the National Institutes of Health, and dedicated to the scientific study of occupational lung diseases.

One of my particular interests has been the use of the chest x-ray, not only in the diagnosis of disease in individual patients, but also in survey work. Chest x-ray surveys may point to unexpected hazards affecting groups of workers previously thought to be employed in relatively safe occupations. Working with several other physicians in our research unit, I have recently completed such a survey. We examined the chest x-rays of over 6,000 members of the National Marine Engineers' Beneficial Association (MEBA). The results constitute persuasive evidence of significant asbestos exposure in this group of merchant seamen.

The National MEBA maintains "diagnostic centers" in New Orleans, San Francisco, New York and Baltimore. These are not primary treatment facilities, but serve more as health screening units and as centers for periodic examination to determine fitness for duty at sea. The men using these centers are therefore a representative sample of the union membership, not a selected group of sick persons, such as might be found in clinics or hospitals.

Our concern with this group of men began in the mid-1970's. Several physicians who had completed their internal medicine training at Tulane were working at the MEBA Diagnostic Center in New Orleans. They noticed that the routine chest x-rays of some of the union members resembled x-rays we used in teaching the radiographic appearance of asbestos effects. They began to bring these films to us for review, and we saw enough abnormal x-rays to arouse our suspicions that asbestos exposure might be a significant risk to men working in the propulsion spaces of merchant ships.

What those x-rays showed was scarring and calcification of the pleura, the membranes covering the surface of the lungs and lining the chest cavities. Although some kinds of pleural scarring result from infections or injuries, the types and locations of scars in these x-rays were those recognized as due, in almost all cases, to inhaled asbestos dust. Our first step was to discuss these x-ray findings with MEBA officials. The union's president, Mr. Jesse Calhoon, authorized a survey of all chest x-rays held in their New Orleans Diagnostic Center. The results provided strong indication of the existence of an asbestos problem. The Board of Trustees of the MEBA Health and Welfare Plan then authorized enlarging the survey to include the latest chest x-ray of each member examined at the other diagnostic centers.

The design of the study was for each of two readers to independently examine each chest x-ray, and to independently record his findings. To do this in a comparable manner, the x-ray findings were classified according to the internationally recognized system for quantifying dust-related abnormalities, the ILO U/C Classification. This system provides accepted definitions of the several types of x-ray shadows produced by mineral dusts, and standard x-ray films showing defined levels of severity of the dust effects. The reason for using such a classification is to allow comparisons between different readers, and different surveys.

In this project, 6,671 films were examined. The four investigators were Dr. Hans Weill, director of our research unit; the late Dr. Morton Ziskind, head of the Pulmonary Diseases Section at Tulane Medical Center; Dr. Manuel Rodriguez, postdoctoral Fellow in Pulmonary Diseases at Tulane; and I. Although three readers were required to complete the project, the design was that of a two-reader project. Dr. Ziskind and I read all the films from New Orleans, San Francisco and New York; and, after Dr. Ziskind's death in March, 1979, Dr. Rodriguez read all the films from Baltimore.

Since our experience with the New Orleans MEBA films had been that a negligible percentage of x-rays showed scarring inside the lungs (a condition of which inhaled asbestos is only one of many causes), we decided to assess asbestos exposure of the entire sample by estimation of the prevalence rates of several pleural abnormalities as they are designed by the International Labor Office Chest X-ray Classification. These abnormalities were pleural thickening, pleural plaques, and pleural calcification. They are types of pleural scarring and are relatively specific indicators of inhaled asbestos, provided certain rules are followed. These rules include not counting a scar adjacent to a rib fracture or other sign of some cause obviously unrelated to dust; and not counting scars in certain locations in the chest where asbestos effects are not ordinarily seen.

Of the original 6,671 films, 295 were eliminated because one or both readers judged them technically unsatisfactory. The final tabulation of 6,376 films showed that I classified 19.8 percent of all films as showing one or more of the specified pleural abnormalities: and the other reader (Dr. Ziskind or Dr. Rodriguez) classified 16.6 percent of the films as positive; 11.9 percent of the films were independently classified as positive by both readers, and this is our estimate of the prevalence of the specified pleural abnormalities in marine engineers. As an indicator of the stringency of our requirements, it should be noted that the estimated rate would rise to 24.5 percent if a positive judgment was required of only one of two readers, rather than two of two readers.

		Reader B		
		+	-	
Reader A	+	760 (11.9%)	501 (7.9%)	19.8%
	-	299 (4.7%)	4,816 (75.5%)	
		16.6%		6,376 (100%)

The 11.9 percent prevalence rate of pleural abnormality is quite high in relation to populations known to have substantial asbestos exposures. In a study of several thousand asbestos miners and millers in Quebec, the overall rate of "any pleural change" was 10 percent. (Rossiter, et al., Archives of Environmental Health, 1972, Vol. 24, pp. 388–400). In an asbestos factory population described in the same report, the overall rate for any pleural change was 4.8 percent. In a random sample of 2,442 men working in British Naval shipyards, the estimated prevalence of pleural abnormalities was only 3 percent. Other studies have given higher estimates of prevalence rates in shipyard workers, but have usually examined volunteer only. Since volunteer groups will be filled with persons who either suspect or know that they suffer from chest disease, such studies will produce over-estimates of disease prevalence, compared to surveys of all workers, or a random sample of all workers.

Comparison of the 11.9 percent abnormality rate in marine engineers to similar or lower rates found in comparable surveys is provocative. Asbestos miners, millers and factory workers have continuous exposures to asbestos fibers and shipyard workers are known to have significant risks from occupational asbestos exposures, including elevated mortality rates from asbestos-related diseases.

Our results show that an unusual proportion of marine engineers bear detectable signs of inhaled asbestos. The pleural abnormalities in question, particularly pleural plaques and calcification, usually take fifteen or more years to develop. The logical inference is that substantial numbers of marine engineers were exposed to significant concentrations of asbestos fibers in the past. Because of the lag time required to develop signs of inhaled asbestos, these data cannot be used to estimate current exposures in marine engineer work. Recently reported measurements, made by the United Kingdom Factory Inspectorate, show just how large the exposures can be in one operation; the removal of old pipe lagging (15 percent asbestos) in boiler rooms and engine rooms. Average levels in each location were over 90 fibers per milliliter, and maximum levels were 220 and 490 fibers per milliliter. In other words, the observed fiber concentrations were from 45 to almost 250 times the current exposure standard of two fibers per milliliter.

It is true that most of the pleural abnormalities found in this survey will prove to be benign; that is, they are not expected to interfere with breathing, nor do they tend to become cancerous. They are, however, markers of asbestos exposure; and that exposure has been associated, in other worker populations, with increased risk of fatal asbestos-related diseases, including cancers. The risk of contracting fatal diseases must be assessed by mortality study, and preliminary planning for such a study of MEBA members is underway.

Regardless of the results of further study, however, this x-ray survey supports two courses of action. The first is to reduce asbestos exposures to the lowest achievable levels. A step toward the ultimate solution has been taken with the substitution of other materials for asbestos in merchant ships delivered by American shipyards in the late 1970's. Sources of asbestos exposure will remain on older ships and, perhaps, on new ships built or repaired in foreign shipyards. This means that for some years to come the men working with insulation in engine rooms and boiler rooms will need to follow careful work practices and use respiratory protection devices.

The second course of action is to recognize that marine engineers and others working in ship propulsion departments have held jobs involving asbestos exposure.

Those among them, however many or few, who become sick or who die from diseases possibly caused by asbestos deserve to have this occupational exposure considered as it relates to compensation.

I now express my gratitude and that of my colleagues at Tulane Medical School for the opportunity of presenting our research findings and our opinions. We join many others in hoping that these hearings result in effective contributions to the health and welfare of merchant seamen.

Mr. BIAGGI. The subcommittee will come to order.

The next witnesses, who will appear as a panel, are Jesse M. Calhoon, president, District 1, Marine Engineers Beneficial Association in Washington, D.C.; and Mr. Robert Leggett, president of the Joint Maritime Congress.

Before we hear from the witnesses, I would like to commend Mr. Calhoon for bringing this issue to the attention of this subcommittee. It is a result of your interest and inquiry that these hearings are being held.

On behalf of the subcommittee, the Chair wishes to express our gratitude to you for bringing this obviously dangerous situation to the our attention. Hopefully these hearings will provide us with some of the answers that we are seeking, never losing sight of the fact that we are concerned with the health of merchant seamen and Coast Guard personnel as well.

I believe that the linking of asbestos and lung cancer is a relatively recent development in the consciousness of the people in our country. Concern over this relationship to cancer is rising to a new pitch. With all of these factors in mind, I want to assure Mr. Calhoon and Mr. Leggett that this committee will pursue this issue as thoroughly and as quickly as possible in order to adequately respond to your concerns.

Mr. Calhoon.

STATEMENT OF A PANEL CONSISTING OF: JESSE M. CALHOON, PRESIDENT, DISTRICT 1, MARINE ENGINEERS' BENEFICIAL ASSOCIATION; AND ROBERT LEGGETT, PRESIDENT OF THE JOINT MARITIME CONGRESS

Mr. CALHOON. Thank you, Mr. Chairman.

Mr. Chairman and members of the subcommittee, thank you for the invitation to testify on the extremely grave threat of asbestos exposure to merchant seamen.

Mr. Chairman, I have here about a 10-page statement, and following the statement is a chronology of MEBA's relationship with Dr. Jones at Tulane University, the studies he has done, and our correspondence to him from the various Federal agencies that we thought had some jurisdiction. There is an index to this. It is tabulated, so it will be easy to refer to by the committee.

As president of the Marine Engineers' Beneficial Association, and therefore, mandated to make the working conditions of the men and women I represent as safe and as hazard free as humanly possible, I have long been concerned that governmental indifference and neglect of the exposure to seamen of a deadly carcinogen may well result in the unnecessary sickness and death of innocent workers. Hopefully this hearing will serve to expedite the process of eliminating the menace of asbestos exposure altogether.

As far back as 1977, the shocking statistics flowing from our New Orleans Diagnostic Center prompted MEBA to contract with the

School of Medicine at Tulane University to investigate and analyze data from more than 1,100 MEBA members to ascertain the degree to which asbestos inhalation poses a health risk to the employees.

The sad conclusions from these tests have made the rapid reduction and elimination of asbestos exposure a number one priority for me, especially in light of the fact that exposures as short as 1 month may cause serious problems for individuals 15 to 20 years later. We thus have no time to delay when so many human lives are at stake.

Dr. Robert N. Jones, the noted pulmonologist, along with three other Tulane University doctors of pulmonary medicine who conducted the research for MEBA, found in their preliminary tabulation of data that an alarming 20 to 25 percent of the members examined had pleural abnormalities which could be attributed to asbestos. When the study was expanded to include four cities—San Francisco, New York, New Orleans, and Baltimore—and 6,671 members—the prevalence rate of pleural abnormality was reduced to about 12 percent.

Unfortunately, 12 percent is still quite high and hardly an indication of a safe work environment. Studies done on asbestos factory workers who are possibly stronger candidates for asbestos diseases than seamen due to the very nature of their work, discovered that their overall rate of any pleural change was only 4.8 percent. An evaluation of shipyard workers, a group verified to be one of the most susceptible to asbestos-related sickness, conducted in Great Britain, showed an overall prevalence of 3 percent.

As you know, the Government addressed the asbestos problem for shipbuilding and other occupations in 1972 when the Occupational Safety and Health Administration (OSHA) promulgated regulations limiting asbestos exposure to two fibers of 5 micrometers in length per cubic centimeter over an 8-working day.

OSHA standards allow an additional eight fibers per cubic centimeter for concentrations of 15 minutes. However, OSHA does not have jurisdiction over vessel personnel, and we have yet to see any regulations come out of the agency that does exercise authority in this area: the U.S. Coast Guard.

To my knowledge, no Coast Guard inspection of merchant marine vessels has ever included monitoring for any asbestos hazard. I am bewildered, frankly, as to why the Coast Guard has not even initiated any proposals to address this problem when it has been aware of the hazards for some time now.

I sent the Tulane University preliminary report to the Commandant of the Coast Guard in February of 1978 to which he replied that his agency was engaged in the "active development of marine occupational safety and health regulations which will address chronic exposure problems directly." Almost 2 years later we have not seen the outcome of this active development.

Furthermore, in September 1979, an article entitled "Asbestos Dust Inhalation" appeared in the proceedings of the Marine Safety Council, a Coast Guard publication which clearly demonstrated knowledge of an experience with the dangers for crewmen of asbestos exposure.

Written by a commander and a lieutenant in the Hazard Evaluation Branch of the Coast Guard, the article describes the hazards of asbestos exposure and preventive steps that might be taken to avoid the risks of acquiring any form of disease through contact with the fire retardant.

After enumerating the various programs and regulations adopted by other Federal agencies, the authors never explain why the Coast Guard has neither published similar rules nor established its own set of guidelines in the area.

The Materials Transportation Bureau, which like the Coast Guard is part of the Department of Transportation, issued regulations over a year ago which sought to reduce the health risk associated with the shipment of commercial asbestos fibers. The directive came about because it was determined that the presence of asbestos poses an unreasonable health hazard. The regulations govern both the packaging and handling of the dangerous fibers. Still nothing has been done for merchant seamen who must live with the deadly substance 24 hours a day.

To date, Coast Guard personnel have consistently contradicted each other when questioned on the goals and intentions of the agency to issue regulations on asbestos. On at least one occasion, officials of the Coast Guard suggested that the NIOSH standards be followed in order to offer the best protection for crewmen. As you probably know those standards, not presently operative, are even more stringent than the OSHA exposure levels currently in effect.

Indeed, the 8-hour exposure level is set at only 0.1 fibers/cc and the 15-minute ceiling limit is 0.5 fibers/cc. Nonetheless, when asked personally what conditions for exposure the Coast Guard is likely to establish, individuals have responded that the agency is "leaning" toward the OSHA levels while acknowledging that these standards are probably not applicable to seamen as they must work 24 hours a day for as many as 6 months at a time.

Moreover, the Coast Guard is fully aware that shipboard operations pose unique hazards to seamen as they are often faced with the responsibility of repairing boilers, steam pipes, or other equipment insulated with the mineral while the ship is underway. Tearing the fiber away to get to the piece of equipment for repair allows the carcinogenic fibers to become airborne which drastically increases the chances of directly inhaling and/or ingesting the mineral dust into the respiratory system or gastrointestinal tract. This particular aspect of a seaman's responsibility is also being totally ignored by the MarAd study now underway.

While individuals within the Coast Guard have agreed that a hazard exists and certain exposure ceilings should be adopted, their common response to my demands that substantive changes in the regulations be made promptly and without further delay is that no proof of the hazard currently exists to warrant regulations limiting ambient asbestos fibers aboard U.S. vessels. The Coast Guard admits that it is waiting for the results of the aforementioned MarAd study, not scheduled to be released for at least 2 more years, to finalize any regulation in the area of asbestos aboard ships.

Meanwhile, the Coast Guard has absolutely no intention of developing its own means of surveying the U.S. ships to draw its own conclusions on the extent of the asbestos hazard even though authority for such an operation is specifically given to the agency by statute.

Jurisdiction over the health and safety of seamen aboard merchant vessels rests exclusively with the Coast Guard. The experience with the two Coast Guard cutters, the *Bibb* and the *Dewane*, should have been enough to alert that agency to the severity of the problem. Asbestos exposure on those ships was found to be in excess of the OSHA limits. The *Dewane's* engineering section contained an asbestos level reaching 3.54 fibers/cc while the engineering section of the *Bibb* had an exposure level reaching 3.6 fibers/cc. The problem was considered serious enough for the Commandant to request in the appropriations bill special funding specifically earmarked to combat the problem of asbestos on the Coast Guard fleet. Foot dragging continues, nevertheless, and nothing has been done for the seamen or vessels in the commercial sector.

Yet no one today denies that asbestos is carcinogenic. Is not a 12 to 20 percent infestation rate in MEBA personnel proof enough that somehow workers are being confronted with asbestos during their working hours? While the agencies within the Government haggle over whether or not a need exists, and what is the best way to test the ambient levels of the mineral, many workers could be contracting a disease that won't show up for another 20 years.

Even if exposure levels are finally agreed to, the question remains as to how relevant the limitations are to arresting or preventing asbestos-related diseases. All regulations concerning asbestos limit both the number and the size of fibers allowed to be in the air. It is the length of the fiber that poses the most serious danger. The short fibers are believed to be more carcinogenic than the long fibers, because the tinier the threads, the more able they are to remain suspended in the air and to bypass the nasal hair. If these fibers succeed in bypassing the natural defense mechanisms of the nasal passage, they are likely to penetrate the lining tissues of the respiratory tract or continue to the lungs.

This discovery led NIOSH to declare in 1976 that "* * * indeed, it is known that asbestos fibers have been previously demonstrated to be carcinogenic to man at all fiber concentrations studied under adequate epidemiologic methods."

Other countries such as Sweden recognize the danger posed by the use of asbestos and therefore prohibit utilization of the material for any purpose. Consequently, users must find replacements for asbestos applications. I am in full support of the action taken by the Swedish Government, and submit that the U.S. Government should do nothing short of a ban.

I am not alone in this recommendation. On December 15, 1976, John F. Finklea, then Director of NIOSH, made this statement to then Assistant Secretary of Labor for OSHA:

> Because it is not possible to specify a safe exposure level for a carcinogen, only a ban on the use of asbestos can ensure complete protection against this mineral's carcinogenic effect. Therefore, emphasis should be placed on prohibiting the occupational use of asbestos in other than completely closed operations, and on substituting other products whenever possible. Asbestos should be replaced where technically feasible, by substitutes with the lowest possible chronic toxicities.

Reluctance to design limits for or even prohibit the use of asbestos purportedly stems from economic considerations. It is argued that requiring such drastic overhauls as total replacement of asbestos which acts as an insulating and fire proofing material would be a financial setback for the owners and operators of vessels.

Yet how can any monetary cost be measured against the cost of human lives? Astute business policy would seem to dictate some kind of action immediately anyway, simply based on the contingent liability in the multibillion dollar range. As an example, some of the 4½ million workers employed during World War II in naval shipbuilding yards have brought individual and class action suits against the Government as a result of sickness, disabilities and/or death due to asbestos exposure. With increased public awareness of the enormously adverse effects of this carcinogen, the companies are not likely to forego responsibility for the health of their employees for too much longer based either on humanitarian principles or simple economics.

It has been suggested that pending the outcome of the Coast Guard regulations, which as we were told 2 years ago are under active development, both labor and management should negotiate standards using available industrial and governmental health and safety standards for the benefit of shipboard personnel. Surely the shipowners cannot be expected to retrofit their ships to meet self-imposed standards only to turn around and find that they do not meet the criteria of new regulations imposed by the Coast Guard.

Extensive Government regulation and involvement in the maritime industry precludes any private resolution to the problem. Indeed, most of the asbestos-related disabilities that were uncovered by the Tulane study were contracted aboard Government vessels.

I might remind the Committee that the maritime industry, because of both its governmental aid programs and the fact that a large proportion of its ships are contracted for by the Government, is more closely regulated than most other industries. Therefore, the Government must take an immediate and active role in remedying this most serious problem.

I am sorry to report, however, that the Coast Guard has totally abrogated its responsibility in this area for insuring a safe environment for American seamen. A positive first step toward achieving government responsibility would be to transfer the Bureau of Marine Inspection and Navigation back to the Department of Commerce where it was much more responsive to the health and safety of the merchant marine crews.

I cannot emphasize enough the urgency required to stymie the spread of numerous kinds of gastrointestinal, lung and related problems, asbestosis, and mesothelioma due to asbestos exposure. These disease are now reaching epidemic proportions.

Again, I thank the committee for allowing me to air my views on an issue that demonstrates one of the most flagrant cases of governmental irresponsibility and inaction.

Thank you, Mr. Chairman.

Mr. BIAGGI. Thank you very much, Mr. Calhoon.

Before we pose any questions to you, we should hear from Mr. Leggett, who is representing the Joint Maritime Congress. They deserve credit for having our former colleague as their president, because he brings with him an extraordinary record of concern for the maritime industry and for the working man, which is clearly demonstrated in his concern for the problems of our Nation.

We are confident that his contribution today and hereafter will be received with the degree of respect he has created by virtue of his credentials and his integrity.

Mr. LEGGETT. Thank you very much, Mr. Chairman. We would ask that the complete statement, plus the exhibits of Mr. Calhoon, and that my full statement, plus the exhibits, be included in the record at the appropriate time.

Mr. BIAGGI. Why do we not do that right now.

Without objection, it is ordered that the complete statements will be made a part of the record at the conclusion of your testimony.

Mr. LEGGETT. Thank you.

Mr. Chairman and members of the subcommittee:

I want to thank you on behalf of the working American seamen and maritime management for scheduling these hearings on the critical health threat posed by asbestos in place today in the workplace on American seamen ships.

As you know, I represent both management and labor in our organization.

Risks of disease due to asbestos exposure have not been defined clearly for all occupational groups known to have significant exposure. Firm scientific data are available only for heavily exposed workers employed in asbestos mining, manufacture and insulation.

Over the past several years, evidence has accumulated that American merchant seamen and shipyard workers are experiencing asbestosis, a progressive and disabling lung disease, and markedly increased rates of cancer. Workers who manufactured the asbestos insulation materials used in ship construction also have increased asbestos-related disease.

There is evidence that the problem may be more widespread than previously believed. Workers from a variety of trades who have been employed in shipyards, presumably in or near areas contaminated by asbestos dust, are now beginning to show signs of X-ray abnormalities in the lungs typical of asbestos exposure.

These include painters, electricians, carpenters, machinists, boilermakers, and welders who may not yet realize they were exposed.

Large numbers of persons worked around asbestos in shipyards during and since World War II. During the peak war years, 1940-44, an estimated 4.5 million persons worked in shipyards in the United States, and even those not directly exposed to asbestos dust, like American seamen working on those vessels constructed, have a higher risk of asbestos-related disease. In the last 15 years, the number of shipyard workers has stabilized to approximately 200,000. Because of the high turnover in jobs, both shoreside and on board ships, during the war and afterward, no one really knows how many people experienced significant asbestos exposure in their work.

The total number of workers exposed to asbestos since the beginning of World War II, including shipyard workers has been estimated at between 8 and 11 million.

Asbestos has been used extensively in shipyards to cover ships and surfaces in new construction, repair and retrofitting. Major sources of exposure to asbestos in shipyards have been fabrication of asbestos materials, such as pipe coverings, their installation, and their removal during repair and retrofitting work, et cetera.

Asbestos has been included in insulation materials such as boards, mattresses, and cloth for engines, hulls, and decks; covering of ventilation and water pipes; coatings for cables and electric wires, wall boards and tiles; and putties, caulks, paints, joint fillers, and cement products.

It may also be present in construction materials such as gaskets, rings, tape, tubing, twine, webbing, washers and coated electric wires.

It is this widespread use which has created the problem for American seamen. It is nearly impossible to gage the magnitude of asbestos exposure on board U.S. vessels constructed prior to 1972 without some comprehensive effort being made to determine the levels of contamination on each and every one of these ships still in service today.

The problem is compounded by the scientific evidence now available which indicates that a contaminated worker will not begin to show signs of the disease for 20 or 30 or more years. World War II merchant seamen lost 5,000 of their members due to enemy fire and unfortunately, now they face this undescribable asbestos crisis.

Recent studies of American seamen shipyard workers, including those exposed to asbestos even for brief periods of time, as little as 1 month or 2, indicate the presence, in some, of asbestos-related diseases. We also find it relates to their families. A report compiled by Dr. Robert W. Jones of Tulane University, Department of Medicine, Pulmonary Diseases Section, indicated that a prevalence rate of 11.9 percent of pleural abnormality had been found in the chest X-rays of 6,671 MEBA members.

Dr. Jones concluded that everyone who has worked as a marine engineer should assume that they were exposed to asbestos. Another significant study was conducted at the Groton, Conn., Naval Shipyard in 1975, where the findings indicated that overall "approximately half of the workers examined showed X-ray evidence of pulmonary and pleural changes of the sort regularly seen following direct or indirect occupational exposure to asbestos." The same study and results have been reported at the Mare Island Naval Shipyard in California, and Long Beach.

That points up my interest in this disease area is the same as my colleague, Glen Anderson, on the committee. Moreover, it is known that risk increases with increased amounts of exposure and the length of time a worker is exposed. Once asbestos particles work their way into body tissues, they tend to stay there indefinitely. It should be pointed out that exposure to asbestos may increase the risk of four serious diseases:

Asbestosis: A chronic lung ailment which can produce shortness of breath and lung damage. The disease results from inhalation of asbestos dust and fibers.

Lung cancer: There is a close association between asbestos exposure and increased occurrence of lung cancer.

Mesothelioma: A cancer that involves the thin membrane lining the chest and abdomen. Most mesothelioma can be traced to prior asbestos exposure.

Other cancers: Several studies have indicated a link between asbestos exposure and increased occurrence of cancers of the esophagus, stomach, colon, and rectum. These cancers are probably the most prevalent kind.

While some people might think that this is a new, innovative kind of disease that we are talking about, I would like to refer the committee to just a few of the documents that I have here: "Asbestos Exposure: A Desk Reference for Communicators," put out by HEW. "Asbestos and Health," an annotated bibliography put out by HEW, and there is a large number of others.

One I have here, "Asbestos, an Information Resource," put out by HEW, PHS, and NIH.

What that indicates, really, is the dangerous kinds of cancer are not the easy ones that you see in the pleural cavities, but are many times ingested in the abdominal section.

There is some evidence that members of the family have these problems.

Clearly, a danger exists, but what is being done to protect our merchant seamen exposed to asbestos fibers while onboard U.S. vessels?

As the committee will note from my exhibits 1 and 2, the U.S. Navy has long recognized the dangers associated with asbestos onboard their ships, and has taken some positive steps toward its elimination. As early as November 7, 1955, the Bureau of Medicine and Surgery set military and civilian exposure limits to asbestos.

But the Navy did not stop there. They periodically updated these exposure limits through May of 1969—when in 1970 they adopted the asbestos exposure limits set by the Occupational Safety and Health Administration.

Since February 1971, the U.S. Navy has required that suitable replacement materials for asbestos be used when practicable on all ships and established a comprehensive program whereby suitable replacement materials have been identified, and a program implemented, which substitutes asbestos with other material on those U.S. naval ships constructed after 1971. The Navy's comprehensive program is outlined in exhibit 1, and the accompanying letter of October 31, 1979, from U.S. Navy, Chief of Naval Material, Admiral Whittle, which states in part:

> Specific updated and detailed instructions pertaining to control of asbestos exposure have been included in the Naval Ships' Technical Manual (NSTM) Chapter 635, which has been promulgated to the fleet and shore industrial activities. The NSTM instructions address, among other things, asbestos engineering and work practice control measures, personnel protective equipment/clothing and workplace isolation and monitoring. I am enclosing a copy of these instructions to provide additional detailed information for your use.

I have referred to that in some of the materials that I have enclosed for this committee.

Another important area of Navy emphasis is the ongoing program for eliminating products which contain asbestos from use in naval ships and shore stations.

I want to point out that in response to questions I asked the Navy while I was in Congress, which is exhibit 2, we find the Navy has no asbestos in its Trident submarines, no asbestos in its 963 destroyers; no asbestos in its 688 class *Los Angeles* class submarines; and a host of other ships. So the Navy is ahead of the rest of the commercial sector in some of the precautions it has taken, and unfortunately, we find even those precautions have not been adequate enough, as is evident by the statistics that we have in our naval shipyards.

Mr. BIAGGI. With relation to those vessels on which the Navy has substituted other materials for asbestos, are they under construction or being retrofitted?

Mr. LEGGETT. On both. On new construction, if you look at exhibit 2, which is someplace in these materials that I have presented, we have got a full listing of all the new ships on which there is no asbestos whatever.

The DD963, at least 974 through 992.

The FFG-7 through FFG-24, a number of the AS's, the Ad's, the AO's, the TATF's, all of the *Los Angeles* class, the CVN-70's currently being built, the PHM's, the Trident, the nuclear cruiser, class 38, the last three of the LHA's and the DDG-47's which we are currently working on.

Mr. BIAGGI. Which vessels continue to have asbestos?

Mr. LEGGETT. Presumptively, all the rest.

What they say is that they have ordered the removal by order of all of the asbestos which comes into contact with U.S. naval personnel. They say there are some 30-50 percent of the asbestos on existing ships which they feel is regularly painted and insulated, and is so located that it does not come into contact with personnel unless the ship is going to be totally torn down; and therefore, they have not ordered the removal of that particular material.

Mr. BIAGGI. Do the studies show that is satisfactory? Does that maintain a low level of asbestos fibers?

Mr. LEGGETT. Presumptively that would. As you can see from some of our other tests, the Navy has had problems with some of their ships that have been tested. The commercial fleet has had problems with some of their fleet that has been tested under the highest standards that are promulgated.

I think that what we are concerned with here is that if the Navy is following a very high standard of care, and if they are using the public purse to finance that, considering the fact that we use the public purse to finance a large portion of our merchant fleet, the Coast Guard has the responsibility for the air that seamen breathe, the ventilation systems, by statute, that we should, in essence, provide the merchant seamen no lesser standard of care than we provide to the Navy.

Mr. BIAGGI. And for their own personnel.

Mr. LEGGETT. That is right. So I would say that this committee, without going through 22 pages of testimony here, I don't think this committee has to pass a bill. We have not drafted a bill and given it to you suggesting that you submit it. I believe there is plenty of authority that says the Coast Guard has the responsibility. They are not exclusively responsible.

Obviously, the Maritime Administration has some responsibility. OSHA has some responsibility. But what we are concerned with, it is almost a race of disclosure, and a race to see what we can do.

We are not here today seeking elaborate billions of dollars of compensation. What we are trying to do is to cut down the risks, as far as possible, to the people who man our ships; and the standards that we set should be reasonable. We should advise personnel what those risks are.

I believe that you can see from this that we have got a pretty good paper chain, both Mr. Calhoon and myself, of our correspondence, who we have corresponded with, what they have said in reply.

In essence, what the Maritime Administration has said is that, we are concerned with this. We have conducted a test. The test was several ships that were tied up alongside the dock, and another ship that was operated on tranquil waters.

We recognize that this is not adequate, and we are going to do further tests, and we are going to have results in a few years.

Mr. BIAGGI. What are the objectives of the tests?

Mr. LEGGETT. The objectives are to find out exactly how many long fibers, and they measure it in microns, and I guess that is a fraction of a millimeter, how many microns are present per cubic centimeter of air, either in the engine room or in various other areas of the ship that would normally have high concentrations.

The hallway that goes between the Cannon House Office Building and the House floor has a very large pipe in it. That pipe is a steam pipe. As I recall my physics, and such as that, that pipe is covered with asbestos.

Mr. BIAGGI. You think we have been exposed to it?

Mr. LEGGETT. Now, if that hallway were in the middle of an earthquake, like a ship is, and that pipe were creaking along like a ship might, and were sloughing off material, I would say then that you might be in a hazard area.

I notice that we paint that hall regularly. We paint that pipe, I think. We try to keep it up very well. If we don't, it is a good reason to take the train. But that asbestos is all over.

George Miller had a bill on the floor of the Congress 6 weeks where he was seeking some $300 to $400 million, that was unanimously supported by the Congress, to get asbestos out of schools, so it is in place.

In areas where we find it in place, we ought to do every single thing we can to either remove it or insulate it and see that people who have to work around it are adequately covered.

We call this to your attention because this committee has jurisdiction over ships. You have jurisdiction over the Coast Guard. The Coast Guard is vested by the statute with the responsibility to look after merchant seamen at sea, and they have got the authority to go ahead and do the testing.

They inspect every year every ship in the fleet; at least, I understand they do. They are supposed to.

Mr. BIAGGI. That is what they say they do.

Mr. LEGGETT. They are supposed to inspect it for health and safety. It is not just the health and safety of people or other ships that might be run into by that ship, but it is the people who work on board. It would seem to me that what we should do is, you are going to have the Coast Guard in here very shortly, you can look at MarAd, and MarAd is not assuming the responsibility. They say it is the Coast Guard.

They are doing these tests, but the tests are not going to come back for a couple of years. OSHA has promulgated a standard, but OSHA does not have people to go out on ships.

Mr. BIAGGI. Their standard is not acceptable?

Mr. LEGGETT. NIOSH is promulgating a higher standard. OSHA is looking at a higher standard, but the NIOSH standard does not have the force and effect of law. We have to recognize we have 457 ships still in active operation in the fleet that are built pre-1972. We have to recognize that the Navy has taken certain precise actions with respect to exposure. The Navy has established exposure categories, and if you look at the materials I provided to you, you can see that the Navy has established various kinds of job exposure levels.

They say these are high-risk jobs. Another risk are medium-risk jobs. Another risk are moderate-risk jobs and low-risk jobs.

I think what we should do, we have these little $9,000 machines that we can take on board ships and actually test the air under various and sundry conditions. The Maritime Administration today is testing 150 ships. We do not know under what conditions.

We should test all the ships, because it might be the 300 ships that MarAd happens to miss that might be really very dangerous.

What we are talking about is not a lot of things dropping through the air like tinsel from a Christmas tree; we are talking about microns of dust, which is very difficult to see, but does make an impression on lungs, and the other pleural and other peritoneal cavities, when it is inhaled.

Now I point out, over on page 16 of my statement, I would like to draw the committee's attention to another area that has been much neglected, the Public Health Service.

As you know, in fiscal year 1980, we gave them $176 million. A lot was for the Public Health Service hospitals which are maintained for the Coast Guard and merchant seamen. We have asked the Public Health Service what they know about asbestos exposure, and you would think they would be out on the periphery of discovery in this area. They ought to be working day by day with Dr. Selikow from Mount Sinai Hospital in New York, who has done a tremendous job.

He says that 20,000 people a year are going to die in the United States from asbestos or asbestos-related inhalation between now and the year 2000 because of what has been done in the past.

We find that the Public Health Service is not very knowledgeable. They have their name on this book, "Asbestos and Information Guide." We have got a regulation by the Coast Guard that says that ships should not carry anything that has asbestos unless it is perfectly sealed and we know that they put out their newspapers here a short time ago, "The Proceedings of the Marine Safety Council," and they have got a lot of things in there done by a commander and lieutenant talking about the dangers of asbestos; but how are they protecting the people who are working there today?

What we suggest is very simple. Do not get alarmed. We have to recognize that there is authority to act. Under title 46, United States Code, section 391(a) the authority is vested in

The Secretary shall issue and may from time to time amend or repeal regulations for the design, construction, alteration, repair, maintenance, operation, equipping personnel, et cetera, manning, to which this section applies as may be necessary for increased protection against hazards to the life and property and the Commandant of the Coast Guard and Commissioner of Customs have general superintendence over commercial marine and merchant seamen.

Under section 46-660(a),

It is the responsibility of the Coast Guard to see that work quarters of merchant seamen are properly ventilated; are in a clean and sanitary condition.

So really they cannot say this is not their primary responsibility. Seamen are putting ads in newspapers. I have included some of those in my materials.

What I would recommend on page 20, first, that an inspection be made by the Coast Guard of all U.S.-flag ships with respect to concentrations of asbestos fibers present in work areas and living spaces, with those vessels constructed before 1972 the first to be inspected;

Second, that each of these vessels be rated on an easily understood scale, according to their compliance with the OSHA general regulations contained in CFR 29 1910.1001, cited earlier, and perhaps later standards to be promulgated.

The Navy rates each job. We would suggest you rate each ship.

Third, that the Coast Guard develop procedures and timetables by which asbestos on board those vessels constructed prior to 1972 be removed and replaced by other more suitable materials, in accord with current Navy regulations in force. That is, we should do the same things to protect our personnel as the Navy is doing and CDS or other government assistance should be available so that we have the funds available to do that.

Fourth, we should develop some controls by which the unavoidable exposure can be minimized where a suitable asbestos substitute is not practical.

Again, the Navy goes through elaborate regulatory procedures setting forth what should be done when you have to work around asbestos. The people working in naval shipyards should be working under the exact same conditions that seamen on board ship are working when it comes to dealing with asbestos.

Mr. Chairman, I have got some elaborate conclusions.

Certainly, the deadly legacy of asbestos is going to be with us for the next decade and many decades to come; and anything that happens today may start a 20- or 30-year time clock with respect to that particular individual. So I think the time is waning and I believe this is an important matter for this committee to relate to and I believe that if you would confront the agencies with this simple incongruity of application of Federal law, I believe that you will be able to come to a proper resolution and proper protective mechanism for American seamen.

Mr. Biaggi. I thank both you gentlemen for excellent statements.

The four steps which you suggest for the Coast Guard seem to be most appropriate and practical. Obviously, we cannot deal with double standards. We shouldn't in any event adopt double standards as a matter of basic principle, certainly not with relation to the health of seagoing personnel.

I am just curious—I don't know if you have the answer—how many vessels in the Coast Guard are susceptible to this hazard; do you know?

Mr. Leggett. That might be another thing we have not looked into.

Mr. Biaggi. Let us help them help themselves.

Mr. Leggett. Hopefully, the Coast Guard ships constructed with Federal funds and used as an auxiliary in time of war, et cetera, are being constructed with the same standards as the Navy. We have not looked into that; but that would be a very interesting thing to look at.

Mr. Biaggi. We are just as concerned about those who serve in the Coast Guard.

Mr. Leggett. Exactly.

Mr. Biaggi. Mr. Calhoon, you brought this to the attention of the committee and we are grateful; and we have embarked on it as evidenced by this hearing, but it is the kind of issue that requires universal support.

We as legislators require that, too.

Mr. Leggett suggests that perhaps a resolution will not necessitate legislation; it may not be necessary. I think I stated that in my opening comments.

In relation to universal support, what has your union done besides talking to us and engaging Dr. Jones, which is a very significant step?

What have you done as to enlarging your constituency?

Mr. Calhoon. We have informed all of our members of all the studies. We have published these studies and mailed it to them.

Mr. Chairman, we probably made a mistake after we got the initial report of Dr. Jones in that we went to the bureaucracies that had the jurisdiction. Had we not gone to those bureaucracies and went right ahead with our own measuring devices and measuring surveys, we would have been completed with that phase now. Like practically every other business in the United States, we got quagmired in the bureaucracies, and it stopped at F-30.

We have met with the employers. We have no problems with employers on asbestos on new ships. We have a prohibition against it being installed except inside the metal boiler cases.

Our real problem is the U.S. Coast Guard. The U.S. Coast Guard is our basic problem.

Mr. Biaggi. I got that message subtly from your statement.

Mr. Calhoon. I just tried to hint at it. If it was left to labor and management, we would solve our problem; but I cannot in good conscience go to management and say: Let's do these studies; let's spend the funds. You have got to alter the ships. You have got to do this. And it is going to take an expenditure, and get the agreement of management to expend that money and 6 months or 1 year or 10 years later, the Coast Guard under the authority they already have in the law comes out with a regulation which doesn't comply with what labor and management agreed to; and we would have to rip out what we already agreed to and make it a double expenditure.

I don't feel in good conscience I can ask any employer to do that. Every time I have raised this problem, they have interjected this issue with me.

What has happened since then, the employers have agreed without exception to remove the spare asbestos off the ship, to remove the asbestos that goes into the boiler from areas of high vibration, to cover it and seal it in plastic so fibers won't be bouncing around the engine room. I have not found any reluctance from the employer to do anything that they could to help this problem except that they don't want to go and make massive expenditures of funds and then be told by the Coast Guard they have to redo it or do it another way.

Mr. ANDERSON. Would you yield?

Mr. BIAGGI. Yes.

Mr. ANDERSON. What about the liability problem if the companies decide they cannot take action now because there is not yet a set Government policy? What about the liability they are subjecting themselves to now because down the road, say 20 years from now, they will be subjected to all kinds of suits? Because today, with all the knowledge everybody has, there isn't much question but that they are going to be sued.

Mr. CALHOON. The lawsuits will not be 20 years away. More likely 20 hours. The lawsuits will continue. The horrible part of it, the conditions that exist on the ship will be affecting babies that are yet unborn that 20 years from now go to sea.

We are talking about problems 40 to 60 years in the future. But who has the liability, Mr. Congressman, I am not sure. I have talked to experts in this field and there is disagreement among the experts.

Most of these ships—I would say practically all of the ships in which the Dr. Jones study shows the asbestos infestation were built and operated by the Federal government. They were not built to private account because you are talking about 15- to 20-year incubation. Our replacement program, which was for private accounts, did not come into place until the mid-1960's; so the 20-year breeding period was created on ships built by the United States Government and operated by the United States Government in World War II, in the Marshall Plan, the Korean war. It is from that era the infestations are now showing up.

Mr. ANDERSON. The operator now is liable. He is hiring the employees who have the disease.

Mr. CALHOON. Under the Federal court cases, particularly in your State, most of the liability has been put onto the asbestos manufacturers because of suppression of evidence or whatever the reasons, but basically it is the manufacturers. I really am not an expert on that; but where there is actual injury to individuals, there is certainly a hell of a lot of liability that is building up or continuing to be built up which has not been addressed.

Mr. ANDERSON. You say today that the employers and employees would be willing to work together, but they cannot be sure the Coast Guard or someone will not change the regulations; therefore, they are doing nothing? It seems they are establishing some grounds for liability by not doing anything.

Mr. Calhoon. They may well be doing that. If it were in private industry, some heads would roll for not having done anything, and the job would get done. When you are dealing with a bureaucracy, you never know what is going to happen. Probably, they get promoted upstairs.

Mr. Anderson. Thank you, Mr. Calhoon.

Mr. Biaggi. I am not so sure the Government would be liable, but given the vintage of the revelation of the asbestos fiber and cancer, the relationship, certainly now that we have the knowledge, certainly a liability exists with people who continue functioning, knowing that there is an extraordinary hazard.

In my judgment, they would be subject to some liability.

Mr. Leggett. Mr. Chairman, as you recall, when the liability got too great in the coal dust areas, we passed legislation which, I don't know, limited the Government liability; but it cost us several billion dollars a year to take care of black lung. There has been legislation with respect to so-called white lung, which is an asbestos-type liability.

I am not positive that there is adequate insurance to cover all the damages that may accrue, but we are not here today to talk about the damage. There are some other committees that are doing that.

What we are really concerned with today is trying to get uniform safety rules and safety procedures, not just adopted through a collective-bargaining contract, but adopted by regulations that are going to apply to aggressive employers and recalcitrant employers and all employees so we can save some lives.

I think this committee has the power to do that if you will properly relate to the agencies under the direct oversight of this committee.

Mr. Biaggi. Thank you.

Mr. Calhoon, I am sure you read Dr. Jones' report. I know you heard it.

Do you agree with its contents?

Mr. Calhoon. Yes, sir. I read his report, his statement, this morning. I had basically heard Dr. Jones explain the same things in his report before, so I have no disagreement with him.

Mr. Biaggi. Mr. Leggett, I do not think there is a need for extensive questioning, but I will pose the same question to you that I put to Mr. Calhoon.

Mr. Leggett. We support his statement. He is a real researcher. He has researched a portion of this total problem and he has produced his scientific result based on the sample that he looked at. He is not extrapolating from that at all.

Certainly, Mr. Calhoon and myself have drawn broader conclusions than what Dr. Jones has testified to.

There is a clear and present danger here. I would hope the Committee would get Dr. Selikow from Mount Sinai down here to testify; because I think if you do, you will find that this is an eminent medical doctor who is at the forefront of diagnosing asbestos-related disease and this has only happened over the past 3 or 4 years that he has done this.

Mr. Biaggi. I am aware of the problem. I believe that we can deal with most of it administratively. The Coast Guard and Public

Health Service will be testifying on February 12. We will have processed both your statements. We will present extrapolations from them to them.

It seems to me obvious that double standards must be eliminated. The low standards of OSHA are not adequate; the acknowledgement of different agencies that danger exists are not adequate, and we have the need to expedite.

Looking 2 years down the road is unacceptable, as you state very clearly. There is a clear and present danger. How clearly and effectively do you deal with it? You can be sure that this committee will be most aggressive in addressing this.

Mr. Leggett. I am sure you will.

Mr. Biaggi. Thank you again for your excellent statements and I want to thank you once again for bringing this issue to the attention of this committee. It is a public service that you performed. Thank you.

Mr. Leggett. Thank you very much.

Mr. Calhoon. Thank you very much.

Mr. Biaggi. Excuse me.

Are there any more questions?

Mr. Anderson. I have a couple of questions.

Before you bid them goodbye, I want to welcome them. I want to compliment Mr. Calhoon and Mr. Leggett on their remarks.

What you are presenting today is very welcome and is long overdue. Perhaps we should have been here 2 years ago or even before that.

Bob, as you mentioned, I have been involved in various aspects of the asbestos situation with the Navy in my district for well over 2 years. This has been directed to the Navy vessels and the effect of asbestos on our Navy personnel and civilian personnel working in shipyards. We are still learning more today about this.

I have a disagreement, Mr. Leggett, with your suggestion to "do as the Navy has been doing." I have been fighting for well over 2 years with the Navy in an uphill fight to get them to do even what they are doing now. I find myself defending the Navy to the shipyard employees who say the Navy is not doing enough.

At the same time, I am fighting with the Navy, saying that I want them to do it faster. I don't want the impression left that the Coast Guard and merchant marine should aspire only to what the Navy is doing. I think the Navy is behind time. They have a great deal more to do.

Mr. Leggett. I think my writer overstated the Navy's performance. The Navy is concerned that if they rapidly substitute fiber glass, they might have just as many problems with fiber glass as they do with asbestos. This is a problem. We have got to move. We have got to do something.

Mr. Anderson. I also have Johns-Manville in my district. They are going to fiber glass. They do not know whether 20 years from now it will be just as dangerous. It is not that simple.

Do you notice that Mr. Leggett's speeches are much shorter than they used to be?

Mr. Biaggi. The taxpayers are no longer paying for it.

Mr. Anderson. In a study conducted at the Long Beach Naval Shipyard, the results show that 68 percent of all the workers there had asbestos-related diseases, and 37 percent of those employed there between 22 and 27 years had asbestos diseases.

It is not just the workers themselves. An employee can bring asbestos fibers home in his clothing and then have family members inhale the substance.

Unlikely as it sounds, we have documented evidence of exposure leading to this potentially fatal disease. As with all carcinogens, there is no known threshold level in exposures to asbestos. There is no safe level. Any exposure could be fatal. These are the facts.

In light of these facts, should not we find some way of protecting workers by preventing workers from exposure? The answer is yes.

However, the Navy said it would cost too much. They estimate it would cost $2 billion to remove all asbestos from their fleet.

Presumably, the removal of this material from our merchant fleet, either during construction or in subsequent overhaul, would be an enormous undertaking.

With this cost, what will the effect be on our merchant fleet's competitive position vis-a-vis foreign-flag carriers?

What should the Government's role be, if any, in paying the costs?

You mentioned an insurance type of program as with black lung. Obviously, there has been no estimate of the cost for our merchant fleet—unless you have some idea about it. What do you think we should be doing, and what role should the Government play in this cost?

Are we responsible?

Mr. **LEGGETT**. I think you pose an excellent question. I think if you were to remove all of the asbestos, it would be a $2 billion problem; but I do not believe it is a $2 billion problem.

I asked the Navy, while I was in Congress, "What increase in operating costs can be attributed to asbestos controls and procedures?"

Their answer was:

> Cost increases have not been quantified. However, increases have taken place in the following areas:
>
> Overhead—due to training, medical surveillance and closer supervision requirements;
>
> Direct labor—due to decreased productivity caused by changed work practices and personal and environmental protection measures;
>
> Indirect—total overhaul work package changes caused by isolation of asbestos ripout bases and exclusion of non-involved trades doing the work and clean-up periods.

Another question I asked was: "What is the cost of the medical surveillance program, cost per man?"

They answered, "The cost of the medical surveillance program, excluding hardware costs, is estimated at $30 to $50 per man per year."

So there are obviously lots of things we can do that we can afford. The Navy indicates they can take out 70 percent to 50 percent during repairs on ships; and they apparently are able to do that within the framework of a—I guess you had a $6 billion or $7 billion naval ship repair and new construction budget last year. I don't believe that this kind of a cost would affect our competitors at all. I do believe, though, that whatever costs are involved, if it proves to be substantial, they should be perhaps shared and we can consider that.

I don't even want to make an allegation about that.

I do think that there are ways to insulate and capsulate asbestos on some of these older ships. You have got some new materials which have just come out. I am sure the Coast Guard is not even aware of it. They are available. They have not taken out patents for them.

I was discussing this at dinner the other evening. They can be used. This is not going to break the bank, and we will save some lives.

Mr. **Anderson**. I notice in your report on page 10 you talk suggest the regulations we have are probably adequate, but you say:

> In spite of those regulations, what has substantially been done to protect the American seaman from the asbestos hazard they face on board United States ships? Not much, really. In light of these established levels of maximum exposure set by OSHA and NIOSH, a program to protect our seamen on board our United States merchant ships has not materialized.

Mr. **Leggett**. As a program.

Mr. **Anderson**. OSHA is supposed to do it up to the waterline, and once the ship goes out to sea, it then becomes a Coast Guard responsibility?

Mr. **Leggett**. I am not even sure of that.

Mr. **Anderson**. As a result of this, neither one does an adequate job.

Mr. **Leggett**. Mr. Calhoon says, in his statement, that OSHA standards don't apply. I think there is a question about it.

OSHA inspectors would have a mighty difficult time to inspect while the ship is at sea. OSHA inspectors, as a practical matter, do not go on our ships. They do rely on our Coast Guard to accomplish much of the inspection that is necessary, so I think when you get into an area like this where obviously you have possibly overlapping jurisdiction, the agency that has the primary responsibility ought to go ahead and assume it. The Coast Guard has said that we may promulgate regulations. What we are saying here is that since the Coast Guard appears to be the primary onsite Federal agency, they should promulgate regulations that either incorporate the OSHA standard or the NIOSH standard or whatever is the best, most practical standard; and they ought to see that there is a uniform method of application among the ships.

Mr. **Biaggi**. Would the gentleman yield?

Mr. **Anderson**. Certainly.

Mr. **Biaggi**. Does not OSHA have primary jurisdiction over the shipyards?

Mr. **Leggett**. Yes.

Mr. **Biaggi**. What have they been doing?

Mr. **Leggett**. But, again, you get into questions of how much, or to what degree, does OSHA superimpose its standards on naval shipyards. I am sure that OSHA is probably in Newport News and some of the private shipyards a heck of a lot more than it is nosing around naval shipyards.

Only because Of Mr. Anderson's and my efforts they may be more in naval shipyards today.

Mr. **Biaggi**. OSHA has no jurisdiction in shipyards that are building naval vessels?

Mr. **Leggett**. I am sure they do. I am sure they have got the capacity to set occupational health and safety standards, but they tend to set it more for the private sector than they do for the public sector. It is much like we set minimum wages, but I guess the last people to get it were some of the people who work in the Capitol.

Mr. **Calhoon**. Mr. Chairman, my understanding is that when the occupational health law was passed, it did give OSHA jurisdiction on ships, and the previous laws that have been passed have given the jurisdiction to the Coast Guard. OSHA did not repeal that jurisdiction; so there are two bureaucracies who sent their ambassadors out and negotiated a peace agreement and the carved the jurisdiction up somewhere along the water's edge. But we have had situations in shipyards where OSHA would come and shut a shipyard down because of noise violation.

As soon as the shipyard workers would go on the ship, they would start up that generator plus another one, and the main engine, and that was not in violation of the Coast Guard level because they never established it; but as far as the water's edge, they made some kind of a peace treaty.

Going back to your previous question, Mr. Congressman, there is a lot more Government responsibility in the asbestos problem for merchant seamen than you would have in a normal industry because before you can build a ship, you must submit the plans to the U.S. Coast Guard and not just the plans, but the material. They have a list of acceptable materials that can be used. They have lists of acceptable manufacturers of certain products that can be used.

Asbestos is on the acceptable list, so the U.S. Coast Guard has approved it. That means the U.S. Government approves the use of asbestos on ships.

The problem got worse, much worse, in the 1960's, because not only were they using asbestos for insulation materials and fire-retardant materials, but they started approval of wall covers, and all kinds of things with asbestos in it, so the newer ships built in the 1950's and 1960's have much more asbestos. Each one of these panels that go in the walls, that material was submitted for testing, and they have U.S. Coast Guard approval on it; so that the asbestos fireboard that is in that seaman's wall has just as clearly been approved by the U.S. Coast Guard as that Kaniyoto television set has been by the Japanese.

I read in the Wall Street Journal about a case in Texas where there were some personal injury law suits in a small plant and, because an OSHA inspector had been in that plant twice, the Government was found to be one-third responsible, or one-fourth responsible for the conditions in the plant.

Now, you have in the U.S. Coast Guard an annual inspection on the vessels, plus you will have the U.S. Coast Guard aboard the vessels every trip. So if they are 25- or 30-percent responsible for than shoreside plant in Texas, the Government has a lot more responsibility because of the much, much deeper regulatory involvement in the shipping industry.

Mr. **Anderson**. I have one last question.

This was a question I asked of Dr. Jones relative to smoking. As dangerous as asbestos exposure is, and I said it is 92 times more likely to result in disease if the individual exposed is a smoker and he corrected me and said 60 times. Would you like to see prohibitions placed on smoking in work areas? Or how about a policy of hiring only nonsmokers?

I have a company in my district which favored such proposals. They had them put into effect and were taken to court over it. I think they lost because they couldn't enforce these kinds of regulations, even though it was shown there were 60 times more chance of people getting asbestos related diseases because of smoking.

We have labor and management witnesses before us. What would your thoughts be along those lines?

Mr. CALHOON. We have informed our membership of those odds; that if they are working in the asbestos atmosphere, you have multiplier effect by smoking. and we advised them not to smoke. A lot stopped smoking since then. Some are still smoking. I don't think that smoke in the individual atmosphere endangers anybody's health and safety except the man smoking, because you are blowing the air in and out and it is very rapid, so the air is changing very rapidly. I could understand regulations saying "No Smoking" in machine space.

It is not a hazard. We have lived with that on the ships for years and years when we carried ammunition. You cannot smoke when you carry ammunition, but it is in a very restricted area.

On the tankers carrying any kind of petroleum products, the smoking is in a very restricted area; and I would think in the very general population, seamen smoke less, much less because of these restrictions than the general population as a whole.

If, when you got to employment and they say, "We won't employ anyone who smokes," that would work up until you got the $200 million ship and you got a $50,000 a day demurrage and you are short of seamen and the only seaman you can hire is smoking cigarettes and it is going to cost you $50,000 a day in interest and amortization and insurance and wharfage. At that point you are going to hire that seaman no matter what the rules say.

Mr. ANDERSON. Thank you, Mr. Chairman.

Mr. BIAGGI. Thank you.

Mr. Ratti?

Mr. RATTI. From what I have heard, the greatest danger seems to be while work is being done on asbestos which puts fibers in the air.

What would you think of a regulation by the Coast Guard which would prohibit all work on the vessel while the vessel is under way except emergency work? Would such a regulation accomplish anything or be of any use? Is that the type of action that you think the Coast Guard should take?

Mr. CALHOON. Well, you get into a question of what is an emergency. That has been a long-disputed factor aboard the ship.

What constitutes an emergency?

I would think that most of—I don't know. I don't know what effect that would have.

Mr. RATTI. Let me go a step further:

What about a regulation that would require that no work be done on asbestos except when all those precautions, such as the Navy enforces, are taken, such as breathing apparatus, restricting the area, certain cleaning practices, where to wet down, and so forth? Would that be a useful regulation?

Mr. CALHOON. Yes; and it should have been put into effect 2 years ago.

Mr. RATTI. Mr. Calhoon, is there to your knowledge much underway work done today on merchant vessels on asbestos?

Mr. CALHOON. Yes, sir.

Mr. RATTI. Do you know the extent of it today?

Mr. CALHOON. Yes, sir. It is very, very extensive. As the cost of the ships has gotten greater and as the cost of the money because of interest rates is greater, there has been greater and greater pressure to keep the ships moving because they are only making money when they are moving cargo. They are not making money lying around alongside the dock. So greater and greater amounts of work are being done at sea so they can reduce or eliminate the lay time for repair work in ports. The port time repair work has just about been eliminated from the merchant ships except for a short period of time that they go through annual inspection.

Mr. RATTI. Do any of the merchant ships have the type of material equipment that the Navy says is required, the breathing apparatus? Do they have that type of equipment; or do they follow the practices that were recommended in that Coast Guard article to be followed when work is being done on asbestos?

Mr. CALHOON. Well, it gave certain equipment by identification number. I wasn't familiar with the identification number. Most or all of the merchant ships do have respiratory masks. Most of the ships do have breathing apparatus, although it was not put aboard the ship to work with asbestos. It was put aboard ship because of paint or to go into a tank or dangerous areas where there is gas or lack of ventilation or fire.

Mr. RATTI. I notice one of the recommendations in Mr. Leggett's statement was inspection of all U.S.-flag vessels with respect to concentrations of asbestos.

Suppose you made that inspection and suppose you found various levels of asbestos on those merchant vessels; would that prove anything? Would it not be possible that a week later if extensive ripout work had been done, that the level would have been something entirely different; or are you just suggesting that the level we are trying to find out is the level that comes from asbestos undisturbed just by reason of being there?

Mr. CALHOON. I think what you are trying to find out is the level of the undisturbed, the amount of asbestos fiber floating in the air, undisturbed asbestos. If it is ripped out, it will go quite high and then drop. It is like any other test. You would have to re-test and re-certify with changed conditions.

Mr. RATTI. What you really want to find out is the undisturbed level, the background level?

Mr. CALHOON. Yes. We are not sure. We just don't know. It may be extremely high in the old ships where the covering on the asbestos is breaking down because of age, because of stress and strain over the years. Because of stress and strain over the years, the fibers are coming out smaller. We just don't know.

Mr. RATTI. Mr. Nemirow, in your exhibit L here, said that the proposal to remove all asbestos material in existing vessels would be premature, since we lack adequate data as to asbestos levels during normal ship operations.

Would you agree with that or not?

Mr. LEGGETT. I would say we can't take it all out. We agree with the Navy position. We ought to be removing the asbestos that is reasonably removable and, undoubtedly, that is going to leave some asbestos there. I think we ought to be taking the same precautions in the merchant ships as we are the Navy ships. We ought to be looking toward some kind of an encapsulating type mechanism to the maximum extent feasible.

Mr. RATTI. I gather the MEBA has carried on an educational campaign in an attempt to alert the maritime people to the dangers of asbestos.

Did that include that Coast Guard proceedings article?

Has that been circulated to the ships themselves?

Has the Coast Guard circulated that, or have you circulated that to the ships?

Mr. CALHOON. I have not.

Mr. LEGGETT. I read his newspapers sometimes. He seems to have regular articles in the newspapers alerting members to the problem That particular Coast Guard article has a questionnaire on the back and solicits views of people with respect to problems in the asbestos area; and if they want to get more information, they apparently can write in and get it; and I am sure that this material is going to be made available to everybody in the merchant marine.

Mr. RATTI. I have no more questions.

Mr. BIAGGI. Mr. Bruce?

Mr. BRUCE. I have one question.

With the thought of expanding your influence, as the chairman suggested, and with concern for the competitive questions, do you know if the guidelines issued by the American Bureau of Shipping or the International Association of Classification Societies, or even IMCO contain any prohibitions or cautions for these vessels?

Mr. LEGGETT. My information is that IMCO is not active in this subject area; neither is ABS.

Mr. BRUCE. That would be another area to bring influence to bear. That would respond to Mr. Anderson's question.

Mr. CALHOON. We have informed the International Transport Workers Organization, which is an international organization of maritime unions throughout the free world and it is headquartered in London. We have informed them and kept them current on the work we have been doing on asbestos. They have shown a great interest.

Now, the ITF will be holding a convention, and their convention protocols get referred to IMCO; so I am sure in the next ITF meeting there will be discussions on a protocol on asbestos to be referred to IMCO.

There is no ABS and no international maritime classification that does have asbestos standards in it.

I have discussed it with the American Bureau of Shipping, and they do not set standards on the health for seamen because they are setting standards on structures and the insurability of the ship that has to do with collisions or fires or hazards at sea. They are not writing the insurance on the seamen themselves, or they are not setting standards for the underwriting of the seamen themselves.

Mr. BRUCE. Let me suggest one guideline issued by American Bureau of Shipping dealing with Class H, insulation. This is in the electrical field.

> Materials or a combination of materials such as silicone elastomer, mica, glass fiber, asbestos, et cetera, with suitable bonding substances such as appropriate silicone resins. Other materials or combinations of materials may be included in this class if, by experience or accepted tests, they can be shown to be capable of operation at 18C.

They are giving license to the use of this kind of material?

Mr. CALHOON. That is correct.

Mr. BRUCE. That is all.

Mr. BIAGGI. One last question.

I think it was in Mr. Leggett's testimony or Mr. Calhoon's—I am not sure which—but it stated apparently that Sweden has responded to this question by banning the use of asbestos.

Mr. CALHOON. Yes. That is true.

Mr. BIAGGI. What do they use as a substitute?

Mr. CALHOON. I don't know. I have talked with a naval architect. I would recommend you bring in some naval architects to testify on this issue.

I have discussed this problem with a naval architect when we first discovered we had a problem. He told me there were all kinds of substitute materials for asbestos.

Mr. BIAGGI. That would not pose additional problems?

Mr. CALHOON. The only reason they have used asbestos is that it was cheaper. I do not know if the substitute materials have been tested fully so that you do not get a problem with them 10 or 20 years from now.

I know I purchased a large building here in the city a couple of years ago and, because I was aware of the asbestos problem, I got a certification that there had been no asbestos used whatsoever in the building and this goes to the insulation, machinery space, and the whole quarters of the building, so major construction can be done without the use of asbestos.

Mr. LEGGETT. The Maritime Administration, in January of 1979, has totally precluded the use of asbestos in insulating their lagging materials, so we are making some progress domestically, too.

Mr. BIAGGI. I am sure we will. The question is making it uniform and consistent and expeditious.

Mr. LEGGETT. Exactly.

Mr. BIAGGI. That is what we intend to do.

Thank you, Mr. Calhoon and Mr. Leggett, for your excellent testimony.

Mr. LEGGETT. Thank you.

[The following was received for the record:]

Statement of Jesse M. Calhoon, President, National Marine Engineers' Beneficial Association, AFL-CIO

Mr. Chairman and members of the subcommittee, thank you for the invitation to testify on the extremely grave threat of asbestos exposure to merchant seamen. As President of the Marine Engineers' Beneficial Association, and therefore mandated to make the working conditions of the men and women I represent as safe and as hazard free as humanly possible, I have long been concerned that governmental indifference and neglect of the exposure to seamen of a deadly carcinogen may well result in the unnecessary sickness and death of innocent workers. Hopefully this hearing will serve to expedite the process of eliminating the menace of asbestos exposure altogether.

As far back as 1977, the shocking statistics flowing from our New Orleans Diagnostic Center prompted MEBA to contract with the School of Medicine at Tulane University to investigate and analyze data from more than 1,100 MEBA members to ascertain the degree to which asbestos inhalation poses a health risk to the employees. The sad conclusions from these tests have made the rapid reduction and elimination of asbestos exposure a number one priority for me, especially in light of the fact that exposures as short as one month may cause serious problems for individuals 15 to 20 years later. We thus have no time to delay when so many human lives are at stake.

Dr. Robert N. Jones, the noted pulmonologist, along with three other Tulane University doctors of pulmonary medicine who conducted the research for MEBA, found in their preliminary tabulation on data that an alarming 20 to 25 percent of the members examined had pleural abnormalities which could be attributed to asbestos. When the study was expanded to include four cities: San Francisco, New York, New Orleans and Baltimore and 6,671 members, the prevalence rate of pleural abnormality was reduced to about 12 percent.

Unfortunately, 12 percent is still quite high and hardly an indication of a safe work environment. Studies done on asbestos factory workers who are possibly stronger candidates for asbestos diseases than seamen due to the very nature of their work, discovered that their overall rate of any pleural change was only 4.8 percent. An evaluation of shipyard workers, a group verified to be one of the most susceptible to asbestos-related sickness, conducted in Great Britain showed an overall prevalence of 3 percent.

As you know, the Government addressed the asbestos problem for shipbuilding and other occupations in 1972 when the Occupational Safety and Health Administration (OSHA) promulgated regulations limiting asbestos exposure to 2 fibers of 5 micrometers in length per cubic centimeter over an eight hour working day. OSHA standards allow an additional 8 fibers per cubic centimeter for concentrations of 15 minutes. However, OSHA does not have jurisdiction over vessel personnel and we have yet to see any regulations come out of the agency that does exercise authority in this area: the U.S. Coast Guard. To my knowledge, no Coast Guard inspection of merchant marine vessels has ever included monitoring for any asbestos hazard. I am bewildered, frankly, as to why the Coast Guard has not even initiated any proposals to address the problem when it has been aware of the hazards for some time now. I sent the Tulane University preliminary report to the Commandant of the Coast Guard in February of 1978 to which he replied that his agency was engaged in the "active development of marine occupational safety and health regulations which will address chronic exposure problems directly." Almost two years later we have not seen the outcome of this active development.

Furthermore in September of 1979 an article entitled "Asbestos Dust Inhalation" appeared in the Proceedings of the Marine Safety Council, a Coast Guard publication which clearly demonstrated knowledge of and experience with the dangers for crewmen of asbestos exposure. Written by a Commander and a Lieutenant in the Hazard Evaluation Branch of the Coast Guard, the article describes the hazards of asbestos exposure and preventive steps that might be taken to avoid the risks of acquiring any form of disease through contact with the fire-retardant. After enumerating the various programs and regulations adopted by other Federal agencies, the authors never explain why the Coast Guard has neither published similar rules nor established its own set of guidelines in the area. The Materials Transportation Bureau, which like the Coast Guard is part of the Department of Transportation, issued regulations over a year ago which sought to reduce the health risk associated with the shipment of commercial asbestos fibers. The directive came about because it was determined that the presence of asbestos poses an unreasonable health hazard. The regulations govern both the packaging and handling of the dangerous fibers. Still nothing has been done for merchant seamen who must live with the deadly substance 24 hours a day.

To date Coast Guard personnel have consistently contradicted each other when questioned on the goals and intentions of the agency to issue regulations on asbestos. On at least one occasion, officials of the Coast Guard suggested that the NIOSH standards be followed in order to offer the best protection for crewmen. As you probably know those standard, not presently operative, are even more stringent than the OSHA exposure levels currently in effect. Indeed, the 8 hour exposure level is set at only 0.1 fibers/cc and the 15 minute ceiling limit is 0.5 fibers/cc. Nonetheless, when asked personally what conditions for exposure the Coast Guard is likely to establish, individuals have responded that the agency is "leaning" towards the OSHA levels while acknowledging that these standards are probably not applicable to seamen as they must work 24 hours a day for as many as six months at a time.

Moreover the Coast Guard is fully aware that shipboard operations pose unique hazards to seamen as they are often faced with the responsibility of repairing boilers, steam pipes, or other equipment insulated with the mineral while the ship is underway. Tearing the fiber away to get to the piece of equipment for repair allows the carcinogenic fibers to become airborne which drastically increases the chances of directly inhaling and/or ingesting the mineral dust into the respiratory system or gastrointestinal tract. This particular aspect of a seaman's responsibility is also being totally ignored by the MarAd study now underway.

While individuals within the Coast Guard have agreed that a hazard exists and certain exposure ceilings should be adopted, their common response to my demands that substantive changes in, and addition to, the regulations be made promptly and without further delay is that no proof currently exists to warrant regulations limiting ambient asbestos fibers aboard U.S. vessels. The Coast Guard admits it is waiting for the results of the aforementioned MarAd study, not scheduled to be released for at least two more years, to finalize any regulation in the area of asbestos aboard ships.

Meanwhile, the Coast Guard has absolutely no intention of developing its own means of surveying the U.S. ships to draw its own conclusions on the extent of the asbestos hazard even though authority for such an operation is specifically given to the agency by statute. Jurisdiction over the health and safety of seamen aboard merchant vessels rests exclusively with the Coast Guard. The experience with the two Coast Guard cutters, the "Bibb" and the "Dewane" should have been enough to alert that agency to the severity of the problem. Asbestos exposure on those ships was found to be in excess of the OSHA limits. The Dewane's engineering section contained an asbestos level reaching 3.54 fibers/cc while the engineering section of the Bibb had an exposure level reaching 3.6 fibers/cc. The problem was considered serious enough for the Commandant to request in the appropriations bill, special funding specifically earmarked to combat the problem of asbestos on the Coast Guard fleet. Foot-dragging continues, nevertheless, and nothing has been done for the seamen or vessels in the commercial sector.

Yet no one today denies that asbestos is carcinogenic. Is not a 12–20 percent infestation rate in MEBA personnel proof enough that somehow workers are being confronted with asbestos during their working hours? While the agencies within the government haggle over whether or not a need exists and what is the best way to test the amient levels of the mineral, many workers could be contracting a disease that won't show up for another twenty years.

Even if exposure levels are finally agreed to, the question remains as to how relevant the limitations are to arresting or preventing asbestos-related diseases. All regulations concerning asbestos limit both the number and the size of fibers allowed to be in the air. It is the length of the fiber that poses the most serious danger. The short fibers are believed to be more carcinogenic than the long fibers because the tinier the threads the more able they are to remain suspended in the air and to bypass the nasal hair. If these fibers succeed in bypassing the natural defense mechanisms of the nasal passage, they are likely to penetrate the lining tissues of the respiratory tract or continue to the lungs.

This discovery led NIOSH to declare in 1976 that: ". . . Indeed, it is known that asbestos fibers have been previously demonstrated to be carcinogenic to man at all fiber concentrations studied under adequate epidemiologic methods."[1] (Emphasis supplied)

Other countries such as Sweden recognize the danger posed by the use of asbestos and therefore prohibit utilization of the material for any purpose, consequently users must find replacements for asbestos applications. I am in full support of the action taken by the Swedish Government and submit that the U.S. Government should do nothing short of a ban. I am not alone in this recommendation. On December 15, 1976, John F. Finklea, then Director of NIOSH, made this statement to then Assistant Secretary of Labor for OSHA:

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[1] J.K. Wagoner, et al., "Comments on 'Critique of Mortality Patterns among Hard Rock Gold Miners Exposed to an Asbestiform Mineral' and 'Asbestos Fiber Exposures in a Hard Rock Gold Mine'" (Washington, D.C.: National Institute of Occupational Safety and Health, 1976).

> "Because it is not possible to specify a safe exposure level for a carcinogen, only a ban on the use of asbestos can ensure complete protection against this mineral's carcinogenic effect. Therefore, emphasis should be placed on prohibiting the occupational use of asbestos in other than completely closed operations and on substituting other products whenever possible. Asbestos should be replaced where technically feasible, by substitutes with the lowest possible chronic toxicities,[2]

Reluctance to design limits for or even prohibit the use of asbestos purportedly stems from economic considerations. It is argued that requiring such drastic overhauls such as total replacement of asbestos which acts as an insulating and fire proofing material, would be a financial setback for the owners and operators of vessels.

Yet, how can any monetary cost be measured against the cost of human lives? Astute business policy would seem to dictate some kind of action immediately anyway, simply based on the contingent liability in the multi-billion dollar range. As an example, some of the four and one-half million workers[3] employed during World War II in Naval shipbuilding yards have brought individual and class action suits against the government as a result of sickness, disabilities and/or death due to asbestos exposure. With increased public awareness of the enormously adverse effects of this carcinogen, the companies are not likely to forego responsibility for the health of their employees for too much longer based either on humanitarian principles or simple economics.

It has been suggested that pending the outcome of the Coast Guard regulations, which, as we were told two years ago are under active development, both labor and management should negotiate standards using "available industrial and governmental health and safety standards for the benefit of shipboard personnel." Surely the shipowners cannot be expected to retrofit their ships to meet self-imposed standards only to turn around and find that they do not meet the criteria of new regulations imposed by the Coast Guard. Extensive government regulation and involvement in the maritime industry precludes any private resolution to the problem. Indeed, most of the asbestos-related disabilities that were uncovered by the Tulane study were contracted aboard government vessels.

I might remind the Committee that the maritime industry, because of both its governmental aid programs and the fact that a large proportion of its ships are contracted for by the government, is more closely regulated than most other industries. Therefore, the government must take an immediate and active role in remedying this most serious problem. I am sorry to report, however, that the Coast Guard has totally abrogated its responsibility in this area for insuring a safe environment for American seamen. A positive first step towards achieving government responsibility would be to transfer the Bureau of Marine Inspection and Navigation back to the Department of Commerce where it was much more responsive to the health and safety of the merchant marine crews.

I cannot emphasize enough the urgency required to stymy the spread of numerous kinds of gastrointestinal, lung, and related problems, asbostosis and mesothelioma due to asbestos exposure. These diseases are now reaching epidemic proportions.

Again, I thank the Committee for allowing me to air my views on an issue that demonstrates one of the most flagrant cases of governmental irresponsibility and inaction.

ASBESTOS

Pertinent communications concerning above for meeting at headquarters on July 3, 1979

Date and subject	*Exhibit*
Jan. 17, 1978—Preliminary report from Dr. Jones	A
Feb. 27, 1978—Calhoon letter to Coast Guard enclosing above preliminary report	B
Mar. 31, 1978—Reply from ADM Siler to above letter	C

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[2] J. F. Finklea to Assistant Secretary for Health, "Evaluation of Data on Health Effects of Asbestos Exposure and Revised Recommended Numerical Environmental Limits," Dec. 15, 1976.

[3] In the case of deceased workers, their administrators.

Apr. 7, 1978—Blackwell letter to Calhoon enclosing copy of his letter to USPHS .... D
Mar. 10, 1978—Blackwell letter to USPHS (Dr. Hinman) .... E
Aug. 4, 1978—Blackwell letter to Calhoon advising of contract award to IIT Research Institute .... F
Mar. 29, 1979—Blackwell letter to Calhoon enclosing copy of Phase I of IITRI report .... G
Jan. 19, 1979—Copy of above report .... H
Apr. 24, 1979—Dr. Jones' letter to Leef commenting on above report I
May 15, 1979—Calhoon letter to Nemirow referring to above report and length of time IIT study will take .... J
June 1, 1979—Dr. Jones' letter to Leef giving results of 6671 x-ray readings .... K
June 26, 1979—Nemirow letter to Calhoon commenting on Dr. Jones' letter and explaining 2-year study length L
June 26, 1979—Nemirow letter to Leggett outlining MarAd's activities .... M
June 29, 1979—Admiral Bell's letter (USCG) to Leggett outlining USCG's activities .... N
July 5, 1979—Selikoff's letter to Nemirow commenting on Exhibit L .... O
July 27, 1979—OSHA Press Release of Revision of Inspectors' Instructions with Regard to Workplace Violations .... P
June 25, 1979—Captain DeCarteret's letter (USCG) to Partente outlining OSHA and NIOSH standards and USCG's position .... Q

Exhibit A

Tulane University, School of Medicine,
New Orleans, La., January 17, 1978.

Mr. Robert Leef,
PCD MEBA-District No. 1,
New York, N.Y.

Dear Mr. Leef: Dr. Ziskind has spoken to you regarding our preliminary tabulation of data from the independent classification of films from a sample of more than 1100 of your members. This tabulation involved finding the prevalence rate of various abnormalities as shown on the most recent x-ray film for each member. All of the chest films, including the latest, were classified according to the ILO U/C International Classification of Radiographs of Pneumoconioses, published in 1972 by the International Labor Office in Geneva, as publication number 22 (revised) in its Occupational Safety and Health series. The classification system is basically a descriptive rather than interpretive scheme and was devised to allow a statistical approach to such questions as are posed by this survey. The actual tabulation was done independently for each abnormality, that is, without respect to whether, e.g., pleural calcification was seen in the same individual with pleural thickening. For that reason, the prevalence rates of thickening, calcification, and plaques cannot be simply added together to give the total rate of pleural abnormality.

The following rates were observed: Dr. Ziskind found 22.4 percent pleural thickening and 2.5 percent pleural calcification; and I found 29.4 percent pleural thickening and 3.1 percent pleural calcification. Dr. Ziskind did not categorize the films for pleural plaques; my estimate of the prevalence is 4.4 percent. Of the 1163 latest films that he categorized, Dr. Ziskind felt that 7 or 0.6 percent should be regarded as suspicious for cancer; of the 1124 latest films that I categorized, 5 or 0.4 percent I regarded as suspicious for cancer. This is very close agreement, but even if the rates were identical they could not be used to estimate the incidence of cancer in this sample; the x-ray is an excellent means of becoming suspicious of the existence of cancer, but a poor means of proving or disproving that cancer is present.

In trying to arrive at the overall percentage of this sample with pleural disease that could be attributed to asbestos, the following principles apply. The prevalence of pleural thickening should be slightly less than the lower of the two estimates, if agreement on individual cases is required between the two readers. When our separate readings are fed into the computer, I would imagine that Dr. Ziskind and I will be found to agree that about 18 or 20 percent of the sample have pleural thickening. Perhaps only 1 percent more have calcification who do not also have thickening; but I would suspect that 2 or 3 percent have pleural plaques who have neither definite thickening nor definite calcification. My guess based on these preliminary figures is that between 20 or 25 percent of this sample of your members will have pleural abnormalities which can be attributed to asbestos. There is no way, of course, of proving with x-rays alone that simple pleural thickening is due to inhaled asbestos. In accordance with the classification, we did not count as thickening those cases which showed this abnormality only in relation to a broken rib or some other obvious explanation that is unrelated to inhaled dust. There is no denying, however, that whatever the prevalence of pleural thickening in a population or a sample thereof, the percentage due to any single cause such as asbestos will obviously be less than the 100 percent attributable to all causes. Taking 20 percent as an estimate of prevalence pleural affects of asbestos in these men, the next question is the significance of this rate. It indicates that these men were not only exposed to asbestos, but inhaled, retained, and developed a detectable tissue reaction to the fibers. The individuals so affected who are also cigarette smokers probably have an increased risk of developing lung cancer when compared to smoking workers who have not had asbestos exposure and smoking workers with exposure but without any x-ray evidence of asbestos retention. Also since we know that not all persons exposed to asbestos will develop visible evidence of asbestos effects of the lungs or pleura we may safely conclude that a percentage much higher than 20 has been exposed to asbestos fibers. Asbestos-exposed persons are also known to be at increased risk of developing pleural mesothelioma, and this risk must be greater in those with incontrovertible evidence of inhalation and retention of fibers. The risk of developing mesotheliema or lung cancer, however, cannot be derived from x-ray survey figures, but must be estimated from mortality studies.

A small number of men in this sample have low grade pulmonary fibrosis. This can only be estimated following computer processing of our film readings, but will be a negligible addition to the 20 or so percent with pleural abnormalities.

Overall, there is a rather impressive percentage of pleural disease in the sample. This is especially true since we attempted to exclude those cases of pleural thickening due probably to causes other than inhaled dust.

Our next step is to devise a scheme for encoding our readings, then have the readings placed in a machine readable form, and subsequently devise analytic procedures for arriving at our final estimates of prevalence of various types of abnormality. The final analysis must be completed before submission for publication in a scientific journal. I feel reasonably confident that the final estimates will be close to these preliminary estimates, primarily because of the very close agreement between the two independent readings.

Please let me know if I can supply more information.

Yours sincerely,

ROBERT N. JONES, M.D.

EXHIBIT B

NATIONAL MARINE ENGINEERS' BENEFICIAL ASSOCIATION,
Washington, D.C., February 27, 1978.

Adm. OWEN W. SILER,
Commandant, U.S. Coast Guard,
Washington, D.C.

DEAR SIR: I am enclosing a preliminary report from Tulane University, commissioned by MEBA, concerning pulmonary infection. We think this creates a very dangerous situation that has been ignored over the years.

The United States Coast Guard is charged with the responsibility of enforcing health and safety standards in the maritime industry.

Please advise us what you have done in the past and what you intend to do in the future to correct this horrendous situation.

Very truly yours,

J. M. CALHOON, *President.*

EXHIBIT C

DEPARTMENT OF TRANSPORTATION,
U.S. COAST GUARD,
Washington, D.C., March 31, 1978.

Mr. J. M. CALHOON,
President, National Marine Engineers Beneficial Association,
Washington, D.C.

DEAR MR. CALHOON: Thank you for your letter of February 27, 1978. I have reviewed the preliminary report from Tulane University concerning pulmonary infection and its possible association with exposure to asbestos fibers. I assure you that the Coast Guard shares your concern over the hazard such exposure may present to persons in the maritime industry.

As you know, occupational health hazards resultant from the chronic effects of exposure to toxic substances have posed a new dimension in providing safe work places for employees. Until very recently (with the exception of a limited number of substances) only the acute effects of exposure to toxic substances were addressed. Chronic problems, and particularly the possibility of carcinogenesis are extremely difficult to evaluate.

With regard to the asbestos hazard, the Coast Guard has been instrumental in encouraging the manufacture of non-combustible bulkhead panels not containing asbestos. Most new vessels are being constructed using panels of this type. During fiscal year 1977 the Coast Guard initiated a program to systematically evaluate the work environment on board merchant vessels. This effort has included an evaluation of the problems posed by asbestos as well as other toxic agents which may be present. This program led to our participation on January 18, 1978, in the Interagency Collaborative Group on Environmental Carcinogenesis meeting which was held to discuss the health hazards presented by asbestos.

We are currently engaged in the active development of marine occupational safety and health regulations which will address chronic exposure problems directly. We are also meeting regularly with representatives of the Occupational Safety and Health Administration to implement the agreed upon OSHA—Coast Guard courses of action which are part of the inter-agency program signed on January 31, 1978. A copy of this program is enclosed for your information.

The parallel efforts of MEBA in addressing the problems posed by chronic toxic hazards are commendable and could be of considerable usefulness in developing meaningful standards for the maritime industry. If you care to provide the Coast Guard with further results of Tulane University's research, it would be sincerely appreciated. It is possible that the National Institute of Occupational Safety and Health may find the study you have commissioned to be particularly beneficial. Endemic studies, such as yours, often provide some of the best data in determining acceptable exposure limits.

I hope you find the foregoing responsive to your inquiry. If the Coast Guard can assist you further in this matter, please feel free to write again.

Sincerely,

O. W. SILER,
Admiral, U.S. Coast Guard Commandant.

EXHIBIT D

U.S. DEPARTMENT OF COMMERCE,
Washington, D.C., April 7, 1978.

Mr. JESSE CALHOON,
President, National Marine Engineers Beneficial Association (AFL-CIO), Washington, D.C.

DEAR JESSE: As we discussed, I have enclosed a copy of our recent letter to Dr. Edward Hinman of the U.S. Public Health Service concerning the asbestos problem. Since we first became aware of this problem we have had several meetings with the appropriate officials in the National Bureau of Standards to assist them in their study of the questions raised by asbestos insulation.

Our efforts are continuing with the National Bureau of Standards and the U.S. Public Health Service. We will be happy to keep you advised of any developments.

Sincerely,

ROBERT J. BLACKWELL,
Assistant Secretary for Maritime Affairs.

EXHIBIT E

MARCH 10, 1978.

Mr. EDWARD J. HINMAN,
Director, Division of Hospitals and Clinics, Bureau of Medical Services, U.S. Public Health Service, West Hyattsville, Md.

DEAR DR. HINMAN: The purpose of this letter is to advise you of a problem wherein we appear to have a joint concern and responsibility. This has to do with the use of asbestos as an insulating material in enginerooms on American ships, and its possible effect on the health of shipboard operating personnel.

We have recently been advised by the Marine Engineers Beneficial Association (MEBA), the principal trade union representing the engineering personnel aboard ship, that a study of 1,100 chest x-rays of their members by doctors at Tulane

University indicate lung damage (a detailed letter report from the doctors at Tulane is enclosed). Naturally, we are concerned and would like to identify the cause and magnitude of the problem if its exists.

I am sure that you are aware that asbestos has not been used in the construction of ships for the past three or four years; however, there are a substantial number of ships still in operation with asbestos used as insulation. My staff is currently making arrangements with the Division of Analytical Chemistry at the National Bureau of Standards to make a thorough survey of a substantial number of ships in the merchant fleet to determine the presence of asbestos fiber.

I believe it would be in all of our best interests if your organization participated in reviewing this problem. I suggest that we arrange to have our professional staffs meet to explore what role you may see as appropriate for your organization. Please call Mr. James A. Higgins, Deputy Assistant Administrator for Commercial Development (377-3750), to make such arrangements or for additional information.

Sincerely,

Samuel B. Nemirow,
(for Robert J. Blackwell,
Assistant Secretary for Maritime Affairs).

Exhibit F

U.S. Department of Commerce,
Washington, D.C., August 4, 1979.

Mr. Jesse M. Calhoon,
President, Marine Engineers Beneficial Association,
Washington, D.C.

Dear Jesse: As part of our continuing efforts to deal with the asbestos problem facing seafaring personnel, the Maritime Administration has initiated and funded a project to analyze the shipboard environment for possible health hazard due to asbestos fibers, and to develop solutions to the problem in order to protect these personnel.

A contract has been awarded to the IIT Research Institute, Chicago, Illionis, for Phase I of this project. the intent of this initial Phase is to perform a macro-analysis of a limited number of ships (three) which will: (1) provide indication of gross airborne fiber levels necessary for defining equipment and sampling procedures for the longer term program (Phase II); and (2) establish an industry interface for conducting the broader program.

The end product of Phase I will be a report indicating maximum levels of asbestos fibers in the air and a recommended Phase II sampling and analysis program that will meet the needs of the scientific and medical communities to ascertain the risks of asbestos exposure to ships' personnel.

We will keep you informed as we progress through this work. If you have any questions, please contact Mr. Marvin Pitkin, Assistant Administrator for Commercial Development (377-2578), or his program manager, Mr. J. Seelinger (377-2671).

Sincerely,

Robert J. Blackwell,
Assistant Secretary for Maritime Affairs.

Exhibit G

U.S. Department of Commerce,
Washington, D.C., March 29, 1979.

Mr. Jesse M. Calhoon,
President, Marine Engineers Beneficial Association,
Washington, D.C.

Dear Jesse: Our contractor, IIT Reaserch Institute, has completed its report on Phase I of our airborne asbestos project. This report discusses the findings of the three-ship sampling program and defines a broader, long-term (two years) effort which IITRI feels would give statistically valid results. A copy of this report is enclosed for your information.

KEY RESULTS

Three ships were sampled; two in port, and a third on a coastal trip. Comparison showed that no violations of current OSHA workplace standards (2 fibers/cc) were found, but levels of asbestos abovbe the most recent NIOSH recommended standard of 0.1 fibers/cc were found.

IITRI recommends a major program to follow-up initial results. Approximately 6,000 samples will be collected from ships at sea by: Merchant Marine Academy Cadets; MEBA-1 Cadets; and Volunteer Engineering Officers.

Somewhere between 40 and 60 ships would be sampled.

Our plan is to distribute the report to a wide range of interested organizations, both public and private, for review, comment and possible assistance, prior to initiating the Phase II work. We will keep you apprised of project developments as they occur and would appreciate receiving any comments or suggestions you may wish to contribute on either the Phase I results or Phase II plan.

Sincerely,

ROBERT J. BLACKWELL,
Assistant Secretary for Maritime Affairs.

EXHIBIT H

Contract No. 5-30072
Final Report IITRI Project No. J6449C01

ASSESSMENT OF ASBESTOS CONCENTRATIONS IN THE
ENGINEEROOM ENVIRONMENT OF MARINE VESSELS,
PHASE I

U.S. Maritime Administration
Office of Commercial Development
Washington, D. C. 20230

Attention: Joseph H. Seelinger
Program Manager

COMMITTEE NOTE.—The text of this report is printed elsewhere in these hearings.

EXHIBIT I

TULANE UNIVERSITY
School of Medicine
NEW ORLEANS, LA. 70112

Department of Medicine
Pulmonary Diseases Section
1700 Perdido Street

Phone: (504) 588-5265

April 24, 1979

Mr. Robert Leef
Suite 812
17 Battery Place
New York, New York 10004

Dear Mr. Leef:

I have reviewed, at your request, the report that you sent me last week. It is entitled "Assessment of Asbestos Concentrations in the Engineroom Environment of Marine Vessels, Phase I". This describes work done by IIT Research Institute under contract for the U. S. Maritime Administration; it was prepared by David R. Jones of IITRI.

The report is divided into two parts: the first is concerned with a preliminary study of the feasibility of sampling for airborne asbestos on board ships; and the second is concerned with planning a larger study, including sampling strategies and sampling techniques. In the first part of the study, samples were taken on board three ships. Two of these were in port and a third was underway. Only four samples were taken on each ship, and the results showed uniformly low concentrations of airborne asbestos. All samples were well below the current OSHA exposure limit standard, and all but one sample were below the proposed NIOSH standard which is twenty times lower than the OSHA standard.

The second part of the report is concerned with the planning of Phase II, a large effort involving the collection of thousands of samples to characterize asbestos exposures in engine rooms and living quarters on ships of various class, age, size, shipping line and route. It is evident from the variables selected and from the size of the proposed study that it is an attempt to characterize usual or ordinary exposure encountered by engineering personnel serving in today's fleet. If such a study reveals uniformly low concentrations of asbestos, the results might be used to support the contention that, under ordinary conditions, work in engine rooms is safe.

On the other hand, numbers of marine engineers have chest x-ray evidence of effects of inhaled asbestos. Further, marine engineers must on occasion make underway repairs, and these jobs may involve removal of asbestos insulating material (and, sometimes, reapplication of the same materials). It thus seems likely that intermittent large exposures occur under extraordinary circumstances; and that these exposures are highest

EXH. I

at the point of dislodgement of asbestos-containing materials. I am thus concerned that the proposed approach, involving fixed area sampling and sampling without regard to hazardous operations, might fail to disclose the hazards associated with specific tasks.

The logical approach at this time would seem to be the documentation of exposures that can occur as a result of hazardous tasks. The personal sampling approach ought to be used and should involve relatively brief sampling periods before, during, and for some time after tasks that dislodge asbestos insulating materials or coating. Area samples could also be collected, simultaneously, in remote parts of the engineering spaces and in living spaces. The most important part, however, would be to characterize the exposure of the individual at the point of emission of asbestos fibers. Not very many samples would be needed in this sort of study. More importantly, the samples could be collected in port; the only requirements would be that the ship's ventilation system be operated in the same manner as when underway, and the tasks being monitored be those of the sorts ordinarily done by engineers for afloat repairs.

I do not suggest, however, that there is no place for a study of the size and scope outlined by IITRI. I believe, however, that it should follow a study such as the one I have described; the latter would involve far fewer samples, would be cheaper and could be completed in less than half the time. It would document which types of operations produce significant asbestos exposures, and the amount of exposure received by the persons doing the work. It would have the additional advantage of providing firm environmental data to add to the accumulating medical evidence that marine engineers receive significant asbestos exposures.

The study outlined by IITRI might fail to do this, despite very large numbers of samples, because of sampling at points and times that are remote from the sources of exposure.

I hope this assessment proves helpful to you. Please call me if you desire further discussion on any of these points.

Yours sincerely,

Robert N. Jones, M.D.
Associate Professor of Medicine

RNJ/kar

Exhibit J

Affiliated with the AFL-CIO

National
Marine Engineers'
Beneficial
Association

444 North Capitol Street, • Suite 800 • Washington, D.C. 20001 • 202-347-8585

May 15, 1979

Honorable Samuel B. Nemirow
Acting Assistant Secretary for
Maritime Affairs
U.S. Department of Commerce
Washington, D. C. 20230

Dear Sam:

By letter dated March 29, 1979, Bob Blackwell sent me a copy of Phase I of the Airborne Asbestos Project report, prepared by IIT Research Institute. While some of the techniques that IIT intends to use are unquestionably beneficial, I am concerned with the Research Institute estimation of two years to complete the study. Moreover, the approach that it intends to take (fixed area samplings and samplings without regard to hazardous operations) will no doubt miss concentrations of asbestos that are associated with certain hazardous operations, such as underway repairs involving removal of asbestos insulating materials and reapplication of same.

Because of my concern over the length of time that the IIT study will take and the probability that it will miss some of the most serious asbestos hazards in the engine room, I requested one of my associates to send the study to the Pulmonary Disease Section of the Tulane University Medical School. Tulane suggested a study that would take half the time to complete and be simpler and cheaper than the one outlined by IIT. For your information and consideration, I am sending a copy of the Tulane suggestions with this letter.

As you know, the asbestos problem is a very serious one, to the point of being life threatening. Therefore, something must be done immediately. While IIT has stated that it found no violations of current OSHA work standards, it did find levels of asbestos above the NIOSH recommended standard. However, these findings did not include underway repairs involving removal of asbestos insulation. Even so, it has been held that exposure to any airborne concentrations of asbestos fibers, regardless of levels of exposure, require annual medical examinations for all

EXH. J

J.M. CALHOON
President

C.E. De FRIES
Secretary-Treasurer

R.T. McKAY
Executive Vice President

LEON SHAPIRO
Vice President

M.H. PELFREY
Vice President

employees so exposed. GAF Corporation and United Engineers & Constructors, Inc. Affirmed, GAF Corp. v. Occupational Safety & Health Rev., 561 F.2d 913 (D.C. Cir. 1977). The reasoning for this is obvious. There is a distinct possibility that future medical knowledge will determine that more minute quantities of asbestos fibers are as harmful as those that currently exceed the OSHA standard. It seems logical to me, therefore, that to protect human life and prevent unnecessary suffering it should not be necessary to wait two years to do something about a problem that everyone knows exists. As a start, MarAd should issue a directive banning the use of any asbestos on new ships being constructed and ordering the removal of all asbestos materials from old ships. Concurrent with these directives, and until all asbestos materials are removed from ships, asbestos samplings should be made along the lines described in the enclosed Tulane Medical School report. By immediately implementing these suggestions, the risk to marine engineers from asbestos exposure will be greatly curtailed or eliminated. I am sure you share my concern that human beings should not be exposed to those unnecessary risks and that you will do all that you can to expedite their removal.

Thank you for your consideration.

Sincerely yours,

J. M. Calhoon

Enclosure
JMC:DAL:bgr

EXHIBIT K

TULANE UNIVERSITY
School of Medicine
NEW ORLEANS, LA. 70112

Department of Medicine
Pulmonary Diseases Section
1700 Perdido Street

Phone: (504) 588-5265

June 1, 1979

Mr. Robert Leef
Suite 812
17 Battery Place
New York, New York 10004

Dear Mr. Leef:

We have just finished tabulating the results of reading the x-rays of 6,671 members of the Marine Engineers Beneficial Association. These were the latest chest films of each member examined at one of four MEBA diagnostic centers in San Francisco, New York, New Orleans, or Baltimore.

The investigators on this project are Dr. Hans Weill, Director of the Tulane Occupational and Environmental Lung Disease Center; the late Dr. Morton Ziskind, head of the Pulmonary Disease Section at Tulane University; Dr. Manuel Rodriguez, a postgraduate Fellow in Pulmonary Diseases at Tulane University; and I. The project involved independent classification of the chest x-ray films by two readers, using the ILO U/C Classification of Radiographs of Pneumoconioses (1971). Dr. Ziskind and I each read all of the films from San Francisco, New York and New Orleans. Dr. Ziskind read about 20 of the films from Baltimore before his death in March, 1979; Dr. Rodriguez completed the reading of films from Baltimore.

For all four cities, 6,671 films were examined. If either reader decided that a film was unreadable, it was eliminated from further analysis. This happened with 295 of the films, leaving 6,376 films for analysis. These were divided among the several cities as follows: San Francisco, 2,390 films; New York, 1,310 films; New Orleans, 1,079 films; and Baltimore, 1,597 films.

Although three readers were involved in completion of this project, the design was that of a two-reader project, so I have labelled the readers Reader A (myself) and Reader B (Dr. Ziskind for the San Francisco, New York and New Orleans films, and Dr. Rodriguez for the Baltimore films). Based on our preliminary assessment of the films from New Orleans, which showed a low prevalence of lung fibrosis, we decided to assess the asbestos exposure of this working group by estimation of the prevalance rates of various pleural abnormalities. These abnormalities are pleural thickening, pleural plaques, and pleural calcification. The readers agreed, before reading even the New Orleans films, to exclude from our classifications those pleural abnormalities that appeared to be due to other specific causes such as rib fractures, chest trauma, operations, or tuberculosis. With these ground rules for classifying the films, pleural thickening has some specificity for asbestos effects; and

EXH. K

the other abnormalities, pleural plaques and calcification, have quite high specificity for asbestos effects. A person was counted as having a pleural abnormality if his film showed one or more of these radiographic appearances.

The tabulations of the independent readings showed that Reader A classified 19.8% of all of the films as showing pleural abnormality, and Reader B classified 16.6% of the films as showing pleural abnormality. 11.9% of films were thought by both readers to show pleural abnormality, and 75.5% of films were thought by both readers to be free of such abnormality. The 11.9%, since it is based upon a requirement for unanimous agreement, represents an irreducible minimum for this two-reader trial. In other words, if a third reader were employed to categorize the same films, the estimate of pleural abnormality could only rise because the three-reader trial would employ a criterion of majority agreement, and that is already obtained for 11.9%.

This 11.9% prevalence rate of pleural abnormality is quite high, even in relation to populations known to have substantial asbestos exposure. In a study by Rossiter and co-workers (Archives of Environmental Health, Vol. 24, pp. 388-400, 1972), of several thousand asbestos miners and millers in Quebec, the overall rate of "any pleural change" was 10%. In an asbestos factory population described in the same study, the overall rate for any pleural change was 4.8%. Another study published in 1972 was that by Harries and co-investigators from the United Kingdom (British Journal of Industrial Medicine, Vol. 29, pp. 274-279) of 2442 men drawn at random from the British naval shipyard workers. The overall prevalence of pleural abnormalities in that sample was 3%. Harries' study may have substantially underestimated the prevalence of pleural abnormality because of their use of the miniature rather than full-sized chest x-ray. But these comparisons are provocative since asbestos miners and millers have continuous exposure to often high levels of asbestos fibers; and shipyard workers are known to have significant occupational risks from asbestos exposure, including significantly higher rates of mortality from asbestos related diseases.

Enclosed is a table of the readings by each reader and by city in which the films were obtained. You will see that our estimation of the prevalence of plaural abnormality is much higher for the New Orleans films than for the remainder of the population. You recall that when we read the New Orleans films, we categorized each film in every individual member's x-ray file, not just the latest film. This may be expected to increase the percentage of films considered positive, since the differences in technique of making several films renders any abnormality more detectable than if the reader is restricted to a single x-ray. New Orleans, however, provided the smallest number of films of the four cities. If one averages the rates of the other three cities, excluding New Orleans because of presumed non-comparability, the percentage of positive films decreases only from 11.9 to 10.3% (548/5297). This figure, of course has the same significance when compared to the overall rates of pleural abnormality prevalent in other asbestos-exposed populations.

We believe these results indicate that an unusual proportion of marine engineers show effects of inhaled asbestos. The pleural abnormalities in question, particularly pleural plaques and calcification, usually take 15 or more years to develop. The logical inference is that excessive numbers of marine engineers were exposed to significant concentrations of asbestos dust in the past. These data do not allow any estimate of the risk associated with current work as a marine engineer. It is also true that most of these pleural abnormalities, particularly plaques and calcifications, are benign; that is, they neither interfere with breathing, nor tend themselves to become cancerous. They are, however, markers of asbestos exposure, and that exposure is associated with an increased risk of fatal asbestos-related diseases, including malignant tumors. This is particularly true for smokers, so the marine engineers, even those whose x-rays are now normal, should be warned of the increased risk from lung cancer in smokers who have been exposed to asbestos.

The major implications of our findings are the needs to document how asbestos exposures occur in the course of working as a marine engineer, and how these exposures may be prevented. It seems probable that exposures are intermittent and are associated with afloat repairs and maintenance work involving the stripping of asbestos insulating materials from boilers, steam lines, valves, and other parts of the propulsion plant, or insulated ducts or other surfaces. The question can be answered by environmental sampling. If environmental exposure to asbestos is related only to certain tasks, then personal protection and special work practices can be used to minimize the exposures. The definitive method of prevention, of course, is to use less hazardous materials as substitutes for asbestos in ship construction.

My colleagues and I are available for further discussion of the results of this survey. We classified these x-ray films without any knowledge of the subjects' ages or length of service as a marine engineer. We believe that it would be quite valuable to look at the prevalence rates of pleural abnormality according to age group and length of service. We are ready to discuss the possibility of doing these further analyses, but plan to publish the preliminary results summarized in this letter.

Sincerely yours,

Robert N. Jones, M.D.
Associate Professor of Medicine

RNJ/t

PREVALENCE RATES OF PLEURAL ABNORMALITY*
IN 6,376 MARINE ENGINEERS

TOTAL POPULATION

	Reader B +	Reader B -	
Reader A +	760 (11.9)	501 (7.9)	(19.8)
Reader A -	299 (4.7)	4816 (75.5)	
	(16.6)		6376

SAN FRANCISCO

	Reader B +	Reader B -	
Reader A +	254 (10.6)	184 (7.7)	(18.3)
Reader A -	82 (3.4)	1870 (78.2)	
	(14.0)		2390

NEW YORK

	Reader B +	Reader B -	
Reader A +	114 (8.7)	93 (7.1)	(15.8)
Reader A -	34 (2.6)	1069 (81.6)	
	(11.3)		1310

NEW ORLEANS

	Reader B +	Reader B -	
Reader A +	212 (19.6)	134 (12.4)	(32.0)
Reader A -	53 (4.9)	680 (63.0)	
	(24.5)		1079

BALTIMORE

	Reader B +	Reader B -	
Reader A +	180 (11.3)	90 (5.6)	(16.9)
Reader A -	130 (8.1)	1197 (75.0)	
	(19.4)		1597

TOTAL POPULATION, MINUS NEW ORLEANS

	Reader B +	Reader B -	
Reader A +	548 (10.3)	367 (6.9)	(17.2)
Reader A -	246 (4.6)	4136 (78.1)	
	(14.9)		5297

*Defined as presence of pleural thickening, pleural plaques, or pleural calcification, excluding cases where the abnormality is probably due to cause other than inhaled dust. Pleural thickening was not counted when it was found only in the cost brenic angle or adjacent to the lung apices.

EXHIBIT L

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Maritime Affairs
Washington, D.C. 20230

JUN 26 1979

Mr. Jesse M. Calhoon
President - Marine Engineers
Beneficial Association
444 North Capitol Street
Washington, DC 20001

Dear Jesse:

Thank you for your letter of May 15, 1979, commenting on the IITRI Phase I report of our shipboard asbestos monitoring program. I appreciate and share your concern over the potential health hazard caused from the inhalation of airborne asbestos fibers aboard ship.

In his letter of April 24, 1979, to Mr. Leet, Dr. Jones of Tulane University has placed considerable emphasis on sampling short term hazardous operations such as those you pointed out (underway repairs, removing and reapplying asbestos materials, etc.). We agree such incidents can pose a health hazard, but we believe they can be handled promptly and effectively by providing respiratory equipment, special clothing, and special procedures such as those contained in OSHA General Regulations, 29CFR 1910.1001, when working under such conditions. The more difficult question is whether or not a health hazard exists from ambient levels during routine ship operations, and this is what the IITRI program stresses. However, since there is good reason to monitor certain hazardous operations, we do intend to have IITRI prepare a test plan to include such sampling within the longer term Phase II program proposed.

The two years required for the proposed IITRI effort was unavoidable. The program could be shortened by purchasing more sampling equipment, using a larger number of ships over a shorter time period, and by using more people for the lab analysis task. To do so would nearly double the cost of the project. The estimated cost of the program as proposed is $350,000. Depending on the availability of additional funding and the results of epidemiology studies described later in this letter, we would be willing to have IITRI revise the work schedule to shorten the time for completing the Phase II program.

Regarding the banning and removal of asbestos from ships, in 1975 MarAd provided an alternate specification for engineroom insulating materials

✓ R. Leggett, AvA, Dr. Jones

EXH. L

for new ship construction. The current MarAd Standard Specification specifically excludes asbestos materials for this purpose on new commercial ships built under government aid programs administered by this Agency.

A proposal to remove all asbestos materials from existing vessels would seem to be premature given that we lack adequate data at this time regarding asbestos hazards during normal ship operations. The purpose of the IITRI Phase II proposal is to determine the existence and extent of any such problem. Our approach is to perform a representative, thorough, and detailed analysis of shipboard environment, after which we would recommend and/or take such corrective actions as found to be necessary.

On May 30, 1979, Mr. J. Seelinger, MarAd's research program manager responsible for this activity, met with Dr. Irving J. Selikoff of the Mount Sinai School of Medicine in New York City, to discuss the overall problem and the MarAd program with IITRI. Dr. Selikoff supports the IITRI approach, including the recommendation on page 9 of the report, that sampling under more severe conditions such as tube blowing, rough weather, and emergency or underway repairs to piping and valves be part of the long term study. However, Dr. Selikoff also feels that the most immediate need in evaluating the association of exposure and risk of disease among seamen is a comprehensive examination of the men concerned, including detailed medical and occupational histories. These data are absent from the original Tulane University medical report of January 17, 1978. Dr. Selikoff has emphasized that no data exist now, including the Tulane and IITRI reports, to indicate that lung abnormalities among merchant seamen are due to occupational exposures. Further, Dr. Selikoff notes there is no evidence showing seamen have experienced such abnormalities at a rate which exceeds the rest of the population. Dr. Selikoff places high priority on these determinations, and in conjunction with Mount Sinai Medical Center and with support from the National Institutes of Health, he has agreed to initiate this comprehensive examination program at once at no cost to MarAd.

The Maritime Administration is commited to doing its part in resolving this issue in the interest of our merchant seamen. I appreciate your comments, suggestions, and assistance, and I will see to it that the Work Statement for Phase II of our research is amended to assure that full coverage is given to short term hazardous operations.

If I may be of any further assistance, please contact me.

Sincerely,

SAMUEL B. NEMIROW
Acting Assistant Secretary
for Maritime Affairs

Exhibit M

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Maritime Affairs
Washington, D.C. 20230

JUN 26 1979

Mr. Robert L. Leggett
President
Joint Maritime Congress
Hall of the States Building
444 North Capitol Street
Suite 801
Washington, D.C. 20001

Dear Mr. Leggett:

Thank you for your letter of May 15, 1979, with enclosure, concerning use of asbestos in ships and asking about the activities of the Maritime Administration in connection with the substance. We share your concern, and that of other leaders in the fields of labor, management and medicine, over the potential dangers involved in the use of asbestos. Our concern applies to all phases of the maritime industry, including ship construction and demolition, as well as the operation of ships.

In 1972, the Maritime Administration revised its Standard Specification for Cargo Ship Construction to provide options to the use of asbestos in ships and to exclude the substance from several insulating purposes. The Standard Specifications for Merchant Ship Construction were revised (with the name changed) in January 1979 to include a note stating "insulating or lagging materials which contain asbestos shall not be used."

Due to the attention directed to asbestos by the medical community early last year, the Maritime Administration took stock of measures it might pursue to assure the health and safety of all personnel connected with merchant vessels. The major activities are listed below.

First, we began development of a handbook of new procedures for use in our National Defense Reserve Fleets. Our employees work in areas in which asbestos is present. Our objective is to provide all possible training, work practices and protective equipment to assure the health and safety of our staff. This effort is proceeding with the wholehearted cooperation of the workers' labor representatives. The program should be in full operation in a matter of weeks.

Second, the sale of surplus vessels (usually for scrapping) was suspended voluntarily. Over the past months, the implications of selling older vessels containing asbestos have been under consideration by the Department of Defense which has a similar sales program. Their efforts have been watched carefully. It is expected that desirable program changes will be implemented in the coming months.

EXH. M

Third, our concern over exposure to asbestos in active vessels of the U.S.-flag merchant marine has led to an award of a multi-part research contract to provide baseline data on the presence (or absence) of airborne asbestos in working ships. The contractor, IIT Research Institute, has completed Phase I of the study, a copy of which is enclosed. We have had the benefit of vigorous support from labor and management leaders in the industry. We also have consulted leading medical experts in the field. Additional detailed work on the study will be pursued diligently, and preliminary results should be received in about one year, with final results made public upon completion in about two years.

Apart from the standard specifications for ship construction discussed above, no regulations by the Maritime Administration are planned. Such regulations are the province of the Occupational Safety and Health Administration, the Environmental Protection Agency and the United States Coast Guard. Of course, we will do whatever we can to further the implementation of such regulations wherever maritime workers are involved.

If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

SAMUEL B. NEMIROW
Acting Assistant Secretary
for Maritime Affairs

Enclosure

EXHIBIT N

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U.S. COAST GUARD G-[illegible]-2/TP24
WASHINGTON, D.C. [illegible]
PHONE 426-7183

16703/OSHA
25 JUL [illegible]

Mr. Robert L. Leggett, President
Joint Maritime Congress
Hall of the States Building
444 North Capitol Street
Suite 801
Washington, D. C. 20001

Dear Mr. Leggett:

On behalf of Admiral Hayes, please be assured that the Coast Guard shares your concern over the severe health hazard that exposure to asbestos fibers may present to shipboard personnel.

On occasion where shoreside contractors are hired for engineroom repair work, the U.S. Department of Labor, Occupational Safety and Health Administration, has jurisdiction over the operation and 29 CFR 1910.1001 and 1915 applies. It therefore becomes the responsibility of the contractor to insure compliance with the applicable standards. However, in instances where crewmembers are engaged in maintenance and repair work as a part of their regular shipboard duties, the vessel owner/operator is responsible for the health and safety of the crewmen and the Coast Guard may exercise regulatory jurisdiction.

While we do not yet have specific regulations addressing this particular hazard, this office has an ongoing regulatory project which will ultimately address this, as well as other safety and health related problems.

The Coast Guard is presently engaged in conducting asbestos monitoring studies aboard our own cutters to determine the extent of any health hazard aboard these vessels. The results of this study, as well as data collected by the U.S. Maritime Administration (MARAD), will greatly aid our people in developing meaningful shipboard asbestos standards.

Also, as you may be aware, MARAD has funded a study of asbestos monitoring on U.S. merchant vessels entitled: "Assessment of Asbestos Concentrations in the Engineroom Environment of Marine Vessels, Phase 1." A copy should be available by writing, U.S. Maritime Administration, Office of Commercial Development, Washington, D.C. 20230, ATTN: Joseph H. Seelinger. Phase 2 of this program is scheduled to begin in several months.

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It's a law we can live with.

EXH. N

Subj: Reply to Mr. Leggett's ltr of 22 MAY 79 re: info on use of asbestos in the Coast Guard

At present, the legally effective Occupational Safety and Health Administration (OSHA) asbestos standard is found in 29 CFR 1910.1001(b); however, subsequent to its publication, additional data regarding asbestos related disease has been developed warranting reevaluation of this standard.

The National Institute for Occupational Safety and Health (NIOSH) published a revised standard in 1976 recommending that no worker be exposed to an airborne concentration of asbestos fibers containing more than 0.1 fibers, longer than 5 micrometers in length, per cubic centimeter of air, as an 8-hour time-weighted average. A ceiling concentration of 0.5 fibers/cc, larger than 5 micrometers in length and based on a 15 minute sampling period, was also recommended.

After reviewing the NIOSH revised recommended standard and other literature dealing with the occupational hazards of asbestos exposure, the Coast Guard recommends that the NIOSH exposure standards be followed in order to afford the greatest protection possible to crewmen aboard U.S. vessels who may be exposed to asbestos fibers. Additionally, the requirements published in 29 CFR 1910.1001(c) and (d) should be followed. This is the same approach the Coast Guard follows in protecting its own employees from the hazards of asbestos exposure.

The Coast Guard will publish shortly in the "Proceedings of the Marine Safety Council," CG-129, an article addressing potential asbestos hazards and available controls, but until we publish a standard, it is recommended that union leadership and shipping company management confer and utilize available industrial and governmental health and safety standards for the benefit of shipboard personnel.

I hope you find the foregoing responsive to your inquiry. If the Coast Guard can assist you further in this matter, please feel free to write again.

Sincerely,

HENRY H. BELL
Rear Admiral, U.S. Coast Guard
Chief, Office of Merchant Marine Safety

EXHIBIT O

THE MOUNT SINAI MEDICAL CENTER
ONE GUSTAVE L. LEVY PLACE • NEW YORK, N.Y. 10029
The Mount Sinai Hospital
Mount Sinai School of Medicine • The Mount Sinai Hospital

July 5, 1979

Environmental Sciences Laboratory
Cummings Basic Sciences Building
10 East 102 Street
New York, New York 10029
[illegible]

Mr. Samuel B. Nemirow
Acting Assistant Secretary for Maritime Affairs
U. S. Department of Commerce
Washington, DC 20230

Dear Mr. Nemirow:

Thank you for sending me your letter of June 26, 1979, to Mr. Jesse M. Calhoon. Reading it, and Mr. Calhoon's letter to you of May 15th, it would seem that you and he are not far apart, and are both concerned that effective measures be taken as soon as feasible to reduce asbestos hazards aboard ship.

Several points may be usefully clarified, however. First, while the IITRI Study, Phase II, will provide information concerning asbestos hazards during normal ship operations (including exposure of individuals other than marine engineer personnel), and is thus full justified, asbestos disease among engineering ship personnel has already been well identified by Dr. Jones' excellent study and Mr. Calhoon's request that measures be undertaken to lessen their risk of asbestos exposure as soon as feasible is very much to the point. This would seem reasonable whatever the findings in the inquiry Phase II study.

In my discussions with Mr. Seelinger, I made the point that careful occupational histories are required to insure that findings of asbestos lung changes due to some other employment (and ship personnel not infrequently work at other trades before or during their ship employment), be listed to obtain true estimates of the incidence of asbestos disease that should be ascribed to shipboard asbestos exposure. This is needed in any study of the other crafts aboard ship. But Dr. Jones' findings are beyond what could be expected from such other exposure, for members of MEBA. We all hope, I am sure, that other crafts will have a much lower prevalence of asbestos-induced changes than the engineers and for them identification of other possible sources of exposure would therefore be important in any evaluation of the influence of shipboard asbestos contamination.

EXH. O

ⓧ Dr. Jones
B. Leef
AVA, Morin

These items of clarification, as I say, are not inconsistent with either your position or that of Mr. Calhoon's, but rather address the timing and focus of control measures.

The problem is a difficult one and will require good judgement and close cooperation for its early resolution. I believe we all owe MEBA our gratitude for having helped to define it.

On a related matter. I am not sure that foreign-flag ships will necessarily have equal concern and early control of potential asbestos contamination. Will that impinge upon our responsibilities in any way? I know, for example, that repair work on foreign ships is increasing in our ship repair yards. Asbestos exposure among ship repair workers is a matter of much concern, and it would be unfortunate if exposure of U.S. shipyard workers were to continue from these sources, after U.S. ships have been controlled.

Sincerely yours,

Irving J. Selikoff, M.D.
Professor

IJS:ms
cc: J. C. Calhoon✓

EXHIBIT P

(Labor Press - Column 13)

JUL 27 1979

OSHA Improves Health Hazard Enforcement

by Eula Bingham, Assistant Secretary of Labor
for Occupational Safety and Health

The Occupational Safety and Health Administration (OSHA) has made some important changes in procedures for enforcing its regulations. The changes are contained in revisions of the instructions given to OSHA inspectors.

A few of the major changes include:

* Employers' duty to prevent hazards. Under Section 5(a)(1) of the OSHA law, every employer has a "general duty" to provide a workplace free from recognized hazards. OSHA inspectors finding employees exposed to a substance for which there is no OSHA standard will consider citing violations of the general duty clause if that degree of exposure to the substance has been recognized as a serious hazard in professional publications; by industry or the employer; or by federal agencies such as the National Institute for Occupational Safety and Health (NIOSH), the Environmental Protection Agency, or the National Cancer Institute; or has been added since 1968 to the list of threshold limit values (TLV) of the American Conference of Governmental Industrial Hygienists. Citations to employers may also be issued under the general duty clause for work practices which result in a potentially serious ingestion or skin hazard or which could lead to a potential inhalation hazard above OSHA limits.

* Noise control. At workplaces with noise levels above OSHA standards, a citation for a "serious" violation shall be issued to the employer if there is no adequate hearing conservation program. The program must include periodic hearing tests (audiograms) for each overexposed employee and retesting or referral to a qualified physician if an employee's hearing ability is reduced by 20 decibels at any frequency.

When insert ear plugs or custom-molded hearing protection devices other than self-fitted, malleable plugs are being used, OSHA will require that individual employee fitting be conducted by a trained person, and that employees be instructed in the care and use of the devices.

1 7/20 ⊗ B. Zuf
A. Arcadipane
C. Morin
EXH. P

cont....

- Following up NIOSH evaluations. If NIOSH finds violations of OSHA standards or health effects due to exposure to toxic substances, OSHA will normally send letters with that information to the employer and the employee representative. The employer will be requested to immediately provide any necessary personal protective equipment as a temporary measure, and to submit a plan for correcting the hazard. OSHA may schedule an inspection if the employer does not adequately respond.

These and a number of other changes in OSHA procedures became effective June 4, 1979. States which have been approved by OSHA to take over job safety and health enforcement must submit plans to OSHA for adjusting their procedures, if necessary, to reflect the new OSHA policies.

Copies of OSHA's "Industrial Hygiene Field Operations Manual" will be available at cost from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

To contact OSHA, look in your phone book under "United States Government, Department of Labor, Occupational Safety and Health Administration," or write to OSHA, 3rd St. and Constitution Ave., N.W., Washington, D.C. 20210.

EXHIBIT Q

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U.S. COAST GUARD (G-MVI-2/TP24)
WASHINGTON, D.C. 20590
PHONE: 202-426-2190

16703
25 June 1979

Mr. Albert Parente, President
Brotherhood of Marine Officers
95 River Street
Hoboken, N. J. 02030

Dear Mr. Parente:

In response to your letters of 23 and 24 April 1979 concerning the possible asbestos health hazard in the enginerooms of Farrell Lines Inc. vessels, please be advised that on occasion where shoreside contractors are hired for engineroom repair work, the U. S. Department of Labor, Occupational Safety and Health Administration, has jurisdiction over the operation and 29 CFR 1910.1001 and 1915 applies. It therefore becomes the responsibility of the contractor to insure compliance with the applicable standards. In instances where crewmembers are engaged in maintenance and repair work as a part of their regular shipboard duties, the vessel owner/operator is responsible for the health and safety of the crewmen and the Coast Guard may exercise jurisdiction.

While we do not as yet have specific regulations addressing this particular hazard, this office has an ongoing regulatory project which will ultimately address this, as well as other, safety and health related problems.

The Coast Guard is presently engaged in conducting asbestos monitoring studies aboard our own cutters to determine the extent of any health hazard abord these vessels. The results of this study, as well as data collected by MARAD, will greatly aid our people in developing meaningful shipboard asbestos standards..

At present, the legally effective Occupational Safety and Health Administration (OSHA) asbestos standard is found in 29 CFR 1910.1001(b); however, subsequent to its publication, additional data regarding asbestos related disease has been developed warranting reevaluation of this standard.

The National Institute for Occupational Safety and Health (NIOSH) published a revised standard in 1976 recommending that no worker be exposed to an airborne concentration of asbestos fibers containing more than 0.1 fibers, longer than 5 micrometers in length, per cubic centimeter of air, as an 8-hour time-weighted average. A ceiling concentration of 0.5 fibers/cc, larger than 5 micrometers in length and based on a 15 minute sampling period was also recommended.

SPEED LIMIT
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It's a law we can live with.

(c) Leaf
[illegible]

RECEIVED
NATIONAL
1979 SEP -4 AM 1:40
444 NORTH CAPITOL ST.
WASHINGTON D.C. 20001

Subj: Asbestos health hazards

After reviewing the NIOSH revised recommended standard and other literature dealing with the occupational hazards of asbestos exposure, the Coast Guard recommends that the NIOSH exposure standards be followed in order to afford the greatest protection possible to crewmen aboard U.S. vessels who may be exposed to asbestos fibers. Additionally, the requirements published in 29 CFR 1910.1001(c) and (d) should be followed. This is the same approach the Coast Guard follows in protecting its own employees from the hazards of asbestos exposure.

As you may be aware, the U.S. Maritime Administration has funded a study of asbestos monitoring on U.S. vessels entitled, "Assessment of Asbestos Concentrations in the Enginegoom Environment of Marine Vessels, Phase 1." A copy should be available by writing, U.S. Maritime Administration, Office of Commercial Development, Washington, D.C. 20230, Attention: Joseph H. Seelinger.

The Coast Guard will publish shortly in the "Proceedings of the Marine Safety Council," CG-129, an article addressing potential asbestos hazards and available controls; however, until the Coast Guard publishes an asbestos standard it is suggested that the union leadership and shipping company management confer and utilize available industrial and governmental health and safety standards for the benefit of shipboard personnel.

Farrell Lines will be notified of the Coast Guard position in this matter by a separate letter.

Should you have any further questions feel free to call on me.

Sincerely,

J. E. DeCARTERET
Captain, U.S. Coast Guard
Chief, Merchant Vessel Inspection
Division
By direction of the Commandant

STATEMENT OF ROBERT L. LEGGETT, PRESIDENT, JOINT MARITIME CONGRESS

Mr. Chairman and members of the subcommittee, I want to thank you on behalf of working American seamen and maritime management for scheduling these hearings on the ciritical health threat posed by asbestos in place today in the work place on American ships. As you know, I am the President of the Joint Maritime Congress, an organization representing the interests of maritime management and labor.

Risks of disease due to asbestos exposure have not been defined clearly for all occupational groups known to have significant exposure. Firm scientific data are available only for heavily expoed workers employed in asbestos mining, manufacture and insulation. Over the past several years, evidence has accumulated that American merchant seamen and shipyard workers are experiencing asbestosis, a progressive and disabling lung disease, and markedly increased rates of cancer. Workers who manufactured the asbestos insulation materials used in ship construction also have increased asbestos-related disease.

There is evidence that the problem may be more widespread than previously believed. Workers from a variety of trades who have been employed in shipyards, presumably in or near areas contaminated by asbestos dust, are now beginning to show signs of X-Ray abnormalities in the lungs typical of asbestos exposure. These include painters, electricians, carpenters, machinists, boiler-makers, and welders who may not yet realize they were exposed.

Large numbers of persons worked around asbestos in shipyards during and since World War II. During the peak war years, 1940–44, an estimated 4.5 million persons worked in shipyards in the United States, and even those not directly exposed to asbestos dust, like American seamen working on those vessels constructed, have a higher risk of asbestos-related disease. In the last 15 years, the number of shipyard workers has stabilized to approximately 200,000. Because of the high turnover in jobs, both shoreside and on-board ships, during the war and afterward, no one really knows how many people experienced significant asbestos exposure in their work.

The total number of workers exposed to asbestos since the beginning of World War II, including shipyard workers has been estimated at between 8 and 11 million.

Asbestos has been used extensively in shipyards to cover ships and surfaces in new construction, repair and retrofitting. Major sources of exposure to asbestos in shipyards have been fabrication of asbestos materials (such as pipe-coverings), their installation, and their removal during repair and retrofitting work etc.

Asbestos has been included in insulation materials such as boards, mattresses, and cloth for engines, hulls, and decks; covering of ventilation and water pipes; coatngs for cables and electric wires, wall boards and tiles; and putties, caulks, paints, joint fillers, and cement products. It may also be present in construction materials such as gaskets, rings, tape, tubing, twine, webbing, washers and coated electric wires.

It is this widespread use which has created the problem for American seamen. It is neearly impossible to gauge the magnitude of asbestos exposure on-board U.S. vessels constructed prior to 1972, without some comprehensive effort being made to determine the levels of contamination on each and every one of these ships still in service today.

The problem is compounded by the scientific evidence now available which indicates that a contaminated worker will not begin to show signs of the disease for 20 or 30 or more years. World War II merchant seamen lost 5,000 of their members due to enemy fire and unfortunately, now they face this undescribable asbestos crisis.

Recent studies of American seamen shipyard workers, including those exposed to asbestos even for brief periods of time, as little as a month or two, indicate the presence, in some, of asbestos-related diseases. We also find it relates to their families. A report compiled by Dr. Robert W. Jones of Tulane University, Department of Medicine, Pulmonary Diseases Section, indicated that a prevalence rate of 11.9 percent of pleural abnormality had been found in the chest X-Rays of 6,671 MEBA members. Dr. Jones concluded that everyone who has worked as a marine engineer should assume that they were exposed to asbestos. Another significant study was conducted at Groton Connecticut Shipyard in 1975, where the findings indicated that overall "approximately half of the workers examined showed X-Ray evidence of pulmonary and pleural changes of the sort regularly seen following direct or indirect occupational exposure to asbestos." The same study and results have been reported at the Mare Island Naval Shipyard in California.

Moreover, it is known that risk increases with increased amounts of exposure and the length of time a worker is exposed. Once asbestos particles work their way into body tissues, they tend to stay there indefinitely. It should be pointed out that exposure to asbestos may increase the risk of four serious diseases:

best copy available

Asbestosis.—A chronic lung ailment which can produce shortness of breath and lung damage. The disease results from inhalation of asbestos dust and fibers.

Lung cancer.—There is a close association between asbestos exposure and increased occurrence of lung cancer.

Mesothelioma.—A cancer that involves the thin membrane lining the chest and abdomen. Most mesothelioma can be traced to prior asbestos exposure.

Other cancers.—Several studies have indicated a link between asbestos exposure and increased occurrence of cancers of the esophagus, stomach, colon, and rectum. These cancers are probably the most prevalent kind.

There is also some evidence that members of families of workers heavily exposed to asbestos face an increased risk of developing mesothelioma and perhaps other asbestos-related diseases, probably as a result of exposure to asbestos dust brought into the home on the shoes and clothing of workers.

Clearly, a danger exists, but what is being done to protect our merchant seamen exposed to asbestos fibers while on-board U.S. vessels?

As the Committee will note from my Exhibits 1 and 2, the U.S. Navy has long recognized the dangers associated with asbestos on-board their ships and has taken some positive steps toward its elimination. As early as November 7, 1955, the Bureau of Medicine and Surgery set military and civilian exposure limits to asbestos. But the Navy did not stop there. They periodically updated these exposure limits through May of 1969—when in 1970 they adopted the asbestos exposure limits set by the Occupational Safety and Health Administration. Since February 1971, the U.S. Navy has required that suitable replacement materials for asbestos be used when practicable on all ships and established a comprehensive program whereby suitable replacement materials have been identified and a program implemented which substitutes asbestos with other material on those U.S. naval ships constructed after 1971. The Navy's comprehensive program is outlined in Exhibit 1 and the accompanying letter of October 31, 1979 from U.S. Navy, Chief of Naval Material, Admiral Whittle which states in part:

"Specific updated and detailed instructions pertaining to control of asbestos exposure have been included in the Naval Ships' Technical Manual (NSTM) Chapter 635 which has been promulgated to the fleet and shore industrial activities. The NSTM instructions address, among other things, asbestos engineering and work practice control measures, personnel protective equipment/clothing and workplace isolation and monitoring. I am enclosing a copy of these instructions to provide additional detailed information for your use.

"Another important area of Navy emphasis is the ongoing program for eliminating products which contain asbestos from use in naval ships and shore stations by identifying suitable substitute asbestos-free materials. This program is in consonance with the Chief of Naval Operations policy that asbestos and materials containing asbestos shall not be used in the construction, overhaul, repair and maintenance of naval ships where suitable alternate materials have been designated. To date, asbestos free substitutes for over thirty asbestos containing products within twelve broad categories have been placed in service. This includes all thermal insulation materials as well as several minor asbestos products. I am enclosing a summary listing of those asbestos-free products which are Navy approved as substitute items.

"With respect to modifying ships containing asbestos, the longstanding Chief of Naval Operations policy applicable to elimination of shipboard asbestos has been recently expanded. Heretofore, *Navy policy has required replacement of asbestos insulation with substitute asbestos-free material when insulated equipment/components are repaired. This policy has now been expanded to include selected area replacement of asbestos insulation in those high shipboard maintenance areas where repairs may be anticipated during a ship's subsequent operating cycle. Implementation of this policy will, within the next several years, result in the removal of shipboard asbestos thermal insulation except that 30 to 50 percent normally untouched except for occasional painting or minor repairs for the life of the ship.*" (Emphasis added.)

But what about our Merchant Fleet? Compared to the U.S. Navy program the Merchant Marines progress in achieving some positive movement and guidance from the appropriate agencies has been dangerously slow and almost negligent.

As the Committee is undoubtedly aware, there are four governmental agencies charged with control of asbestos emissions:

The Occupational Safety and Health Administration. This group is responsible for promulgating and enforcing exposure of workers in the workplace. It is part of the Department of Labor.

The National Institute for Occupational Safety and Health. This group, part of Health, Education and Welfare, is responsible for providing data on the toxicity and safe exposure limits for chemical and physical agents found in the workplace.

The National Institute of Environmental Health Sciences, also an agency of Health, Education and Welfare, performs studies on chemical and physical agents emitted into the environment which may have an impact on the population.

The Environmental Protection Agency. This agency is charged with the promulgation and enforcement of emissions from manufacturing sources into the air and water. It is charged with maintaining and/or improving the quality of the environment. Several other agencies have groups which work on asbestos diseases, including the National Institutes of Health, the National Cancer Institute, and several interagency committees.

In 1972, OSHA took the lead by issuing regulations establishing maximum exposure levels for asbestos. This standard (29 CFR 1910.1001) contains provisions which limit employee exposure to asbestos fibers; no longer than five micrometers, per cubic centimeter of air (2 fibers/cc) over any eight-hour work shift. In addition, OSHA established a ceiling limit of 10 fibers, longer than five micrometers, per cubic centimeter of air (10 fibers/cc) was included. Employers of marine engineers are currently required to comply with these exposure limits. However, there has been additional evidence to warrant a re-evaluation of these standards and a stricter limitation is expected from OSHA shortly.

In 1976, the National Institute for Occupational Safety and Health (NIOSH) recommended stricter limits with respect to asbestos exposure in the workplace that no worker be exposed to concentrations of no more than 0.1 fibers, longer than five micrometers in length, per cubic centimeter of air per eight-hour work period. A ceiling of 0.5 fibers/cc, longer than five micrometers was also established.

But in spite of those regulations, what has substantially been done to protect the American seamen from the asbestos hazard they face on-board U.S. ships? Not much really. In light of these established levels of maximum exposure set by OSHA and NIOSH, a program to protect our seamen on-board our U.S. merchant ships has not materialized.

As you will note in Exhibit 3, in his letter of June 23, 1979, Samuel B. Nemirow, then Acting Secretary for Maritime Affairs, writes:

"In 1972, the Maritime Administration revised its Standard Specification for Cargo Ship Construction to provide options to the use of asbestos in ships and to exclude the substance from several insulating purposes. The Standards Specifications for Merchant Ship Construction were revised (with the name changed) in January 1979 to include a note stating 'insulating or lagging materials which contain asbestos shall not be used.'

"Due to the attention directed to asbestos by the medical community early last year, the Maritime Administration took stock of measures it might pursue to assure the health and safety of all personnel connected with merchant vessels. The major activities are listed below.

"First, we began development of a *handbook* of new procedures for use in our National Defense Reserve Fleets. Our employees work in areas in which asbestos is present. Our objective is to provide all possible training, work practices and protective equipment to assure the health and safety of our staff. This effort is proceeding with the wholehearted cooperation of the workers' labor representatives. The program should be in full operation *in a matter of weeks.*

"Second, the sale of surplus vessels (usually for scrapping) was suspended voluntarily. Over the past months, the implications of selling older vessels containing asbestos have been under consideration by the Department of Defense which has a similar sales program. Their efforts have been watched carefully. It is expected that desirable program changes will be implemented in the coming months.

"Third, our concern over exposure to asbestos in active vessels of the U.S.-flag merchant marine has led to an award of a *multi-part research contract* to provide baseline data on the presence (or absence) of airborne asbestos in working ships. The contractor, IIT Research Institute, has completed Phase I of the study, a copy of which is enclosed. We have had the benefit of vigorous support from labor and management leaders in the industry. We also have consulted leading medical experts in the field. Additional detailed work on the study will be pursued diligently and preliminary results should be received in about one year, with final results made public upon completion in about two years.

"Apart from the standard specifications for ship construction discussed above, no regulations by the Maritime Administration are planned. Such regulations are the province of the Occupational Safety and Health Administration, the Environmental Protection Agency and the United States Coast Guard. Of course, we will do whatever we can to further the implementation of such regulations whenever maritime workers are involved." (Emphasis added.)

The IIT Phase I and II studies, to which Mr. Nemirow refers, are grossly deficient in their testing sample. Phase I analyzed only three ships, two of which were sampled in port and the third on a smooth overnight coastwise trip—hardly typical operating situations. The Phase II study only intends to gather data on a random sample of 115 ships, undoubtedly a restrictive sample. It would have been considerably more desirable, and I believe essential to such an important study, to analyze each and every ship in the U.S. merchant fleet as to the levels of asbestos fibers to which the crews are exposed.

Unfortunately, little has been done to actually protect the seaman on-board the vessels costructed prior to adoption of these standards which are still in active service. There are 457 of these vessels still in active operation, many with 10 or more years of projected future service.

According to Mr. Nemirow, the Coast Guard has the responsibility for the health and safety of American seamen. It would therefore appear incumbent upon the Coast Guard to exercise appropriate regulatory jurisdiction in this area. Since the Environmental Protection Agency concerns itself primarily with manufacturing sources of asbestos and not with occupational hazards posed by asbestos, they do not have jurisdiction in this instance.

I would like to call the Committee's attention to Exhibit 4, a letter from Admiral Henry Bell, Chief, Office of Merchant Marine Safety for U.S. Coast Guard, which clearly delineates their responsibility in insuring the safety of American seamen, in which Admiral Bell states:

"On occasion where shoreside contractors are hired for engineroom repair work, the U.S. Department of Labor, Occupational Safety and Health Administration, has jurisdiction over the operation and 29 CFR 1910.1001 and 1915 applies. It therefore becomes the responsibility of the contractor to insure compliance with the applicable standards. However, in instances where crewmembers are engaged in maintenance and repair work as a part of their regular shipboard duties, the vessel owner/operator is responsible for the health and safety of the crewmen and the Coast Guard *may* exercise regulatory jurisdiction.

"*While we do not yet have specific regulations addressing this particular hazard, this office has an ongoing regulatory project which will ultimately address this, as well as other safety and health related problems.*" (Italic added.)

I find it quite bewildering, Mr. Chairman, that although asbestos was acknowledged to be a hazard by the U.S. Navy as far back as 1955, that the U.S. Coast Guard has only recently begun to address the hazard. Surely the Coast Guard was aware of the U.S. Navy activity in this regard. Clearly, the exposure limits have been in effect for some time. As I stated previously, OSHA promulgated regulations establishing certain asbestos exposure limits in 1972 and NIOSH in 1976. What then has prevented the Coast Guard from requiring through their regulatory authority that our merchant seamen be adequately protected from asbestos contamination while at sea; what has prevented them from making asbestos part of their biennial inspection criterion of U.S. flag vessels; what has prevented them from promulgating regulations or establishing "any" programs to eliminate this dangerous substance from our merchant vessels?

I would also like to draw the committee's attention to another area which has been neglected, the asbestos program of the Public Health Service hospitals. As you know, in fiscal year 1980 $176 million was budgeted for the PHS hospitals to provide, primarily, for the medical care of American merchant seamen and active-duty Coast Guard personnel. Although PHS is aware of the problem and several pilot programs are in existence, we would hope that the committee would see fit to encourage expansion of the PHS work in the area of asbestos disease diagnosis and prevention. It would appear, Mr. Chairman, that as the fiscal year 1981 budget moves through Congress and the committee, that this might be an area which could utilize some additional budgetary authority.

As I pointed out to the committee earlier, the U.S. Navy has established certain levels of contamination on-board their vessels and have undertaken the task of removing asbestos from their vessels. What then has been the justification on the part of the U.S. Coast Guard for their inaction in the matter? Inaction which each day increases the possibility of asbestos-related disease in our seamen, disease which will not even become symptomatic for another twenty or thirty years. The authority to promulgate some minimum standards by the Coast Guard are clearly available.

U.S.C. 46 Sec. 391(a)

"(6) Regulatory Authority.—

(a) In accordance with the provisions of section 553 of title 5, the Secretary shall issue, and may from time to time amend or repeal, regulations for the design, construction, alteration, repair, maintenance, operation, equipping, personnel qualification, or manning of vessels to which this section applies, as may be necessary for increased protection against hazards to life and property. . . ."

U.S.C. 46 Sec. 2

"Superintendence of commercial marine and seamen; documentation.

The Commandant of the Coast Guard and the Commissioner of Customs shall have general superintendence of the commercial marine and merchant seamen of the United States, so far as vessels and seamen are not, under existing laws, subject to the supervision of any other officer of the Government. The Commissioner of Customs shall be specially charged with the decision of all questions relating to the issue of registers, enrollments, and licenses of vessels, and to the filing and preserving of those documents; and wherever in this title any of the above-named documents are required to be surrendered they shall be surrendered and returned to the commissioner of Customs. . . ."

U.S.C. 46 Section 660(a)

"Inspection of crew quarters—Time and extent

(a) The Coast Guard shall inspect the crew quarters of every American vessel, at least once in each month, or at such times as such vessel shall enter an American port, and shall satisfy itself that such quarters are of the size required by law or regulations issued thereunder, are properly ventilated and in a clean and sanitary condition, and are equipped with the proper plumbing and mechanical appliances required by law or regulations issued thereunder, and that such plumbing and mechanical appliances are in good working order and condition."

Of course, we can point to on-going studies, particularly those being conducted by the Maritime Administration, the Phase I and II "Assessment of Asbestos Concentrations in the Engineroom Environment of Marine Vessels," and admittedly these will shed some additional light and provide some statistical evidence on which we may promulgate regulations in the future, but action must be taken now.

Asbestos is a problem on-board our U.S.-flag vessels, particularly those built prior to 1972. We know this—the program and studies conducted by the U.S. Navy clearly prove this; MarAd's shipbuilding specifications bear this out. As can be noted from the recent news articles I am providing, our merchant seamen are up-in-arms. Exhibit 5, an article which appeared in the American Marine Engineer, July 1979, refers to the high rate of pleural abnormality found in the examination of 6,671 x-rays of District 1 Pacific Coast MEBA members compiled by a team of pulmonary specialists at New Orleans, Tulane University. The Tulane Study, which I know will be discussed in greater detail here today, clearly points up the catastrophic health hazard which is posed by engine room exposure to asbestos on-board our U.S. merchant vessels. The other two articles, which have been submitted as Exhibits 6 and 7, are not atypical of the public awareness campaign being waged by Maritime unions as to the dangers of exposure to asbestos fibers on-board U.S. vessels.

Most shocking, of course, is the recent article appearing in the New York Times, January 15, 1980, with the headline "500,000 To DIE BY 2000 FROM ASBESTOS." The article states ". . . *that despite years of medical warnings about asbestos fibers, the fireproofing material is still in widespread use in America and could account for half a million deaths by the end of the century.* Dr. Irving J. Selikoff of the Mount Sinai School of Medicine in New York, says cancer and other diseases caused by asbestos since its introduction during World War II are only now beginning to show up." (emphasis added.) The article continues, "20,000 asbestos related deaths will occur each year unless there is a massive public health campaign to eliminate its use." But still, these men are daily subjected to unknown concentrations of asbestos contamination on-board our vessels.

Asbestos on-board our ships is like having a poisonous gas slowly leaking out on our ships, slowly poisoning and ultimately killing our American seamen. We cannot let this grave situation persist, we must take action without delay.

I propose that the United States Coast Guard take the following actions immediately:

First, that an inspection be made of all U.S. flag ships with respect to concentrations of asbestos fibers present in work areas and living spaces, with those vessels constructed before 1972 the first to be inspected.

Second, that each of these vessels be "rated" on an easily understood scale according to their compliance with the OSHA General Regulations contained in CFR 29 1910.1001, cited earlier.

Third, that the Coast Guard develop procedures and timetables by which asbestos on-board those vessels constructed prior to 1972 be removed and replaced by other more suitable materials in accord with current Navy regulations in force.

Fourth, develop some controls by which the unavoidable exposure can be minimized where a suitable asbestos substitute is not practical.

Mr. Chairman, I would expect that this committee will, after reviewing the testimony presented here today, and in subsequent hearings, be prepared to take meaningful action directing the U.S. Coast Guard to fulfill its regulatory responsibility with respect to the asbestos hazard on-board our U.S. merchant ships. Although I do not foresee the need for legislation in this regard at the outset, I would expect that the committee would direct, through its oversight authority, the implementation of the four point program I have outlined for the elimination and minimization of the asbestos danger.

Again, I would like to thank the committee for providing this opportunity to discuss the most grave problem facing our industry today. However, it is abundantly clear that unless we learn from the lessons of the past, we are destined to compound the deadly legacy of asbestos and even today start the physiological clocks ticking for the next 40 years.

EXHIBIT #1

THE CHIEF OF NAVAL MATERIAL
WASHINGTON

31 October 1979

Dear Mr. Leggett,

In your letter of 4 October 1979, you requested the status of the Navy's program for handling asbestos, information pertaining to asbestos claims filed and the Navy's program to modify existing ships containing asbestos.

The Navy recognizes the serious health hazards posed by asbestos and continues to pursue an aggressive, comprehensive program to protect Navy civilian/military personnel and environs from unnecessary exposure to asbestos. Specific updated and detailed instructions pertaining to control of asbestos exposure have been included in the Naval Ships' Technical Manual (NSTM) Chapter 635 which has been promulgated to the fleet and shore industrial activities. The NSTM instructions address, among other things, asbestos engineering and work practice control measures, personnel protective equipment/clothing and workplace isolation and monitoring. I am enclosing a copy of these instructions to provide additional detailed information for your use.

Another important area of Navy emphasis is the ongoing program for eliminating products which contain asbestos from use in naval ships and shore stations by identifying suitable substitute asbestos-free materials. This program is in consonance with the Chief of Naval Operations policy that asbestos and materials containing asbestos shall not be used in the construction, overhaul, repair and maintenance of naval ships where suitable alternate materials have been designated. To date, asbestos free substitutes for over thirty asbestos containing products within twelve broad categories have been placed in service. This includes all thermal insulation materials as well as several minor asbestos products. I am enclosing a summary listing of those asbestos-free products which are Navy approved as substitute items.

With respect to modifying ships containing asbestos, the longstanding Chief of Naval Operations policy applicable to elimination of shipboard asbestos has been recently expanded. Heretofore, Navy policy has required replacement of asbestos insulation with substitute asbestos-free material when insulated equipment/components are repaired. This policy has now been expanded to include selected area replacement of asbestos insulation in those high shipboard maintenance areas where repairs may be anticipated during a ship's subsequent operating cycle. Implementation of this policy will, within the next several years, result in the removal of shipboard asbestos thermal insulation except that 30 to 50 percent normally untouched except for occasional painting or minor repairs for the life of the ship.

With regard to claims filed, as of 1 October 1979 approximately one hundred asbestos related claims had been submitted to the Navy under the provisions of the Federal Tort Claims Act. These claims are in the administrative phase of processing. Claims have also been filed under the provisions of the Federal Employees Compensation Act or other workers' compensation programs administered by the Department of Labor. The Navy does not administer these programs and does not maintain records of these claims. Some other asbestos related lawsuits against the government are in litigation; comment thereon is accordingly inappropriate. Specific requests for information concerning asbestos litigation in which the United States is involved should be directed to the Attorney General.

I hope the information provided will be of assistance.

Sincerely,

A. J. Whittle, Jr.
Admiral, U.S. Navy

Encl:
(1) NSTM 635 Appendix A
(2) Summary of asbestos-free
material designated as
substitute

Mr. Robert Leggett
Joint Maritime Congress
Hall of the States Building
444 North Capitol Street
Suite 801
Washington, DC 20001

APPENDIX A. SAFETY REQUIREMENTS, REMOVAL PROCEDURES, CONTROL MEASURES, ENVIRONMENTAL MONITORING, MEDICAL SURVEILLANCE AND TRAINING

635-A.1 DUST PRODUCING MATERIALS. All thermal insulation materials generate dust when being installed or removed. Continued exposure to high concentrations of mineral dusts can cause pathological lung damage which is permanent and cumulative with continued exposure. The clinical diagnosis of this lung damage can range all the way from shortness of breath to lung and gastro-intestinal cancers.

1. **Policy.** Removal and replacement policies are set forth in the latest issue of NAVSEA Instruction 5100.2.

2. **Asbestos.** Asbestos dust is particularly harmful when routine exposure to high concentrations occurs. Because asbestos is so widely used in so many products (for example, insulation, cement pipe, floor tiles, thickening agents in paints, brake and clutch facing, plaster and plastics) it is impossible to completely avoid some degree or type of exposure whether ashore or afloat. In older naval ships, much of the thermal insulation is high in asbestos content. When in place and not disturbed, asbestos thermal insulation does not produce dust but, when ripped out, excessive levels of dust can be generated if proper care is not taken.

WARNING

Asbestos is recognized as a major health hazard. Inhalation of this material can lead to serious impairment of health in subsequent years.

The adverse affect of asbestos is magnified enormously by cigarette smoking. Because of the serious health hazards associated with the use of asbestos, it is the policy of the Naval Sea Systems Command (NAVSEA) that asbestos and many materials containing asbestos shall not be used in future construction, overhaul, repair, or maintenance of Navy ships where suitable substitute materials have been identified. Suitable substitute asbestos free thermal insulation materials have been identified for all ship machinery, boiler, and piping insulation uses and are required by MIL-STD-769( ) and by other sections of this chapter. In other applications which pose a potential asbestos exposure hazard (such as packing/gasket material, gloves, welder's blankets, wall board, talcum powder and pipe hanger liners) some substitute materials have been identified. Asbestos-free substitute materials shall be tested, under the technical management of NAVSEC and, if found acceptable, NAVSEA will direct their use in place of asbestos containing materials. Existing supplies of asbestos containing materials for which acceptable substitutes have been identified shall be excessed in accordance with normal supply policies and procedures.

a. For many years, asbestos was used as insulating material for high temperature machinery, boilers and piping. Until this insulation is replaced, a potential health hazard exists; however, this potential hazard can be controlled with proper maintenance and/or removal procedures (see paragraph 635-A.4).

b. Since it is difficult to identify asbestos, rip-out operations must proceed on the assumption that asbestos is present unless it is suitably marked or identified as non-asbestos (see paragraph 635-A.2) or can be shown to be asbestos-free by means of electron microscopy, dispersion staining or X-ray diffraction techniques.

3. **Fibrous Glass.**

a. Persons exposed to fibrous glass and other asbestos free insulations products may experience irritation of the skin, eyes, and upper respiratory tract, particularly upon initial exposure or if exposure is infrequent. After being exposed to fibrous glass on a regular basis for 1 or 2 weeks, most workers will no longer experience these irritant effects.

b. Limited studies of workers in fibrous glass industries have shown no serious long term side affects, although there is some indication that the probability of contracting an infectious lung disease such as pnuemonia may be elevated, probably due to the irritating property of the glass fibers. Research in this problem area is continuing. Until this issue is resolved, it is prudent to use protective dust respirators approved by the National Institute of Occupational Safety and Health (NIOSH) or the Mine Safety and Health Administration (MSHA), formerly the Mining Enforcement and Safety Administration (MESA) in work environments where airborne exposure to fibrous glass dust concentrations approaches or exceeds the limits of paragraph 635-A.3.

635-A.2 IDENTIFICATION OF THERMAL INSULATION MATERIALS. Prior to about 1971, nearly all thermal insulation used in naval ships was asbestos. From 1971 to about 1974, low asbestos materials (about 20 percent asbestos by weight) were specified to reduce the hazard of asbestos exposure. Commencing in 1974, astos-free thermal insulation materials were specified for all services except pipe hanger liners. Many new construction ships under construction in 1974 and later years were already insulated with asbestos thermal insulation products and could not be re-insulated without enormous cost, ship delay, and asbestos exposure to insulation workers. As a result, most new ships commissioned through 1976 are equipped with some asbestos thermal insulation. Most thermal insulation repair work done since 1974 has been accomplished with asbestos-free materials. The type of insulation material used can be identified in one of the following ways:

1. **Banding and labeling.** In some ships, asbestos-free thermal insulation repairs are marked by metal labels banded or wired to the outer covering of the insulation.

2. **Green colored adhesive.** In a few surface ships, asbestos-free repairs are identified by use of a green colored adhesive painted over the last layer of cloth surrounding the repair. Top coats of paint (normally white) conceal the green undercoat, therefore, it is necessary to scrape a spot of the top coat to see if there is a tell-tale green undercoat.

3. **Red tinted adhesive.** Any insulation repairs initiated after August 1978 require the use of a red tinted adhesive as the method of identifying asbestos-free thermal insulation.

a. In place of tags, labels, signs or locally developed control procedures, utilize a red undercoat sealer to identify asbestos-free materials prior to final painting. This color system for identification of asbestos-free thermal insulation is easier to control and is more cost effective than systems which use tags/labels.

b. During subsequent rip-out or repair, the ship or repair activity will be able to determine if asbestos or asbestos-free insulation material is installed by scraping through the exterior paint to determine if a red undercoat is present. The absence of a red undercoat indicates that some or all of the underlying insulation material contains asbestos or that the ship is one recently completed or already under contract in which the thermal insulation, although asbestos-free, has not been color-coded as required herein (see paragraphs 635-A2.5.1 and 635-A.2.6).

c. **Piping and machinery.** When installing asbestos-free insulation, cement and size glass cloth lagging using red tinted adhesive MIL-A-3316 class 1, grade B (specification is in process of revision requiring red instead of green color). Paint exterior of lagging in conventional manner conforming to this chapter. Red tinted adhesive conforming to pending revision to MIL-A-3316 class 1, grade B can be obtained from the following suppliers whose approved products will be placed on the products list, (QPL) for this class and grade. As additional suppliers become qualified they will be added to the QPL. Until NSNs are assigned and a central supply position established, local procurement of the red tinted adhesive sealer is authorized.

PRODUCTS MEETING THE REQUIREMENTS OF

MIL-A-3316, CLASS 1, GRADE B

Product	MFR	Address
50-207	Essex Chemical Corp BFC Division	14370 Gannet St Lamirada CA 90638
713-(31158)	Vimasco Corp	P. O. Box 516 Nitro West VA 25143
E-1658-B(RED)	Borden Chemical Co.	56 Nostrand Brooklyn New York 11205

4. **Removable Pads.** Asbestos-free pads constructed of asbestos-free material and covers shall be positively identified. Some installations require that the pads be unpainted. In these cases, an embossed metal tag identifying the pad as asbestos-free shall be affixed. In all other cases,

the asbestos-free pad shall be identified by using any one of the following methods: stenciling, color-coding, or tagging with an embossed metal tag. Any removable pad must be controlled and handled as asbestos material unless it (a) is color-coded, (b) is identified as asbestos-free by a metal tag or stencil, (c) is installed on one of the ships listed in paragraph 635-A2.5, (d) is not one of the exceptions noted for ships listed in paragraph 635-A2.6, or (e) is proven to be asbestos-free by laboratory examination. Any asbestos removable pad removed at a depot or intermediate maintenance activity shall be replaced with a removable pad fabricated from asbestos-free materials.

5. As of 1 July 1978, the following ships will be/have been delivered with asbestos-free thermal insulation except for pipe hanger liners and the exceptions noted:

SHIPS	EXCEPTIONS
LHA 1 - 2	Asbestos boiler casing insulation and removable pads
LHA 3 - 4	Asbestos boiler casing insulation
CVN 68-70	Some catapult through insulation
SSN688, 689 and 691-718	Removable thermal insulation bags installed in accordance with NAVSEA 0989-LP-039-8000
SSN690	Removable thermal insulation bags installed in accordance with NAVSEA 0989-LP-039-8000 and some molded pipe insulation. Treat all molded pipe insulation in SSN690 as asbestos unless proven asbestos-free by laboratory examination or color-coding
CGN 38-41	Removable thermal insulation bags installed in accordance with NAVSEA 0989-LP-008-6000

Initial installation of asbestos-free thermal insulation is not color coded on these ships; however, subsequent repairs may be color coded. Asbestos work controls are not required on these ships except for pipe hanger liners and items noted.

6. The following ships, recently completed or under contract, have or will have asbestos-free insulation which may not be color coded. Except for pipe hanger liner replacement, asbestos work controls are not required on these ships:

AD-41, 42 and 43
AD-177, 178 and 179
AD-39, 40 and 41
DD-974 thru 992
FFG-7 thru 35
LHA-5
PHM-1 thru 6
SSBN726 thru 732
T-ATF-166 thru 172

WARNING

After rip-out of thermal insulation around a pipe hanger, it is not to be automatically assumed that the hanger liner itself is asbestos-free despite having found the red adhesive sealer as part of the thermal insulation system around the pipe hanger. Therefore, hanger liners must be considered to be asbestos unless inspection indicates otherwise.

7. **Pipe hanger liners.** A substitute material for pipe hanger liners will be designated by 1 April 1979.

635-A3 REQUIREMENTS FOR HANDLING ASBESTOS-FREE THERMAL INSULATION MATERIALS. These requirements apply to forces afloat, intermediate maintenance activities, naval shipyards, repair yards and ordnance/weapon stations. To minimize exposure to fibrous glass dust, mineral wool dust and other non-asbestos insulation dusts, the following criteria shall be observed whenever installing or removing asbestos-free thermal insulation materials or whenever fabricating asbestos-free thermal insulations parts:

1. For unprotected personnel, the threshold limiting valve (TLV) of airborne:

a. Fibrous glass fiber is 10mg/m^3 for fibers less than 5 micrometers in diameter.

b. Mineral wool dust is 10mg/m^3

c. Calcium silicate dust is 10mg/m^3

Airborne concentrations in excess of these limits require respiratory protection specified in Appendix B.

2. Since forces afloat and intermediate maintenance activities do not have the capability to monitor fibrous glass concentrations, conscientious execution of fabrication, rip-out or installation operations, employing the engineering and procedural controls set forth below, is necessary to preclude airborne concentrations exceeding the above stated limits. At shore activities, typical operations shall be monitored periodically to verify that the engineering and procedural controls employed are adequate to preclude exposure to excessive concentrations of airborne fibers/dust. As a general rule, airborne concentrations measured during previous similar work operations may be used to determine respiratory protection for

scheduled work. Operations will be considered similar if, in the opinion of an industrial hygienist, the size of the operation is comparable to previous operations and is performed by trained personnel using the same engineering controls and work practices. Recommendations for improved controls or procedures shall be forwarded to COMNAVSEA (SEA 04) for approval.

3. Engineering controls (such as local exhaust ventilation, dampened or wetted material, and various degrees of containment) shall be employed as the primary means of reducing the concentration of airborne fibers/dust during installation/removal of asbestos-free thermal insulation material. Respiratory protection and protective clothing will be used to supplement engineering controls to insure personnel are not exposed to airborne fibers/dust exceeding established limits. Protective clothing in this application is defined as cloth coveralls or disposable coveralls.

4. Where materials are machine-sawed, die-cut, slit or ripped out, local exhaust ventilation shall be used to control the generation of dust and fibers. Ventilation shall be positioned or arranged so that dust and fibers are not drawn into the workers' breathing zone.

5. Fibrous glass sanding operations and oxygen generator maintenance operations can generate large quantities of small fiber particles. Prudence dictates that engineering controls and respiratory protection specified by an industrial hygienist be employed for these operations regardless of the airborne concentrations generated.

6. Safety glasses with side shields, goggles or face shield shall be worn when installing/removing materials overhead where there is a significant chance that airborne particles may get in the eyes.

7. Personnel who routinely work with asbestos-free thermal insulation materials shall be provided with disposable or cotton coveralls. Fibrous glass-contaminated cotton coveralls shall be laundered separately from other clothing.

8. Prior to eating and at the end of a work period, personnel shall remove coveralls and wash hands and face with soap and warm water to remove fibers from skin. No food shall be stored, prepared, dispensed or eaten in fibrous glass work areas.

9. In so far as it is practical, fibrous glass should be worked in a wet or damp state. See paragraph 635-A.6.c for requirements for moistening thermal insulation during removal operations.

10. Local procedures shall provide for isolating or restricting access to rip-out and installation work sites to minimize potential exposure to non-involved personnel and contamination of adjacent areas. Drop cloths, tapes, signs or similar means can be used to isolate an area. All fibrous glass and calcium silicate rip-out and work areas shall be posted with a CAUTION sign which states:

CAUTION

Fibrous Glass

or

Calcium Silicate

Operations in Progress

Avoid Breathing Dust

At depot maintenance facilities, repair facilities and ordnance/weapon stations, an industrial hygienist shall periodically monitor typical fibrous glass operations to insure that engineering controls and work practices are effective in controlling the level of dust/fibers generated and that prescribed respiratory protective equipment precludes exposure to dust and fibers concentrations above the TLV.

11. Fibrous glass waste and scrap shall be wet down and placed in plastic bags for disposal as industrial waste. If at sea, more than 50 miles from land, the bags should be perforated, weighted and thrown overboard. If less than 50 miles from land, retain the waste material onboard and dispose of as industrial waste upon return to port.

12. Cleanup of dry fibrous glass dust shall be performed using an industrial vacuum equipped with a HEPA filter.

13. Compressed air shall not be used for cleaning clothes, machinery, or other surfaces.

14. Personnel experiencing continuing skin irritation attributable to exposure to fibrous glass, calcium silicate or mineral wool should be referred to the nearest Navy Regional Medical Center for consultation.

635-A.4 REQUIREMENTS FOR HANDLING ASBESTOS THERMAL INSULATION BY SHIPS FORCE. Major asbestos removal operations shall not be performed at sea. A series of minor rip-outs shall not be employed to avoid the control requirements associated with a major rip-out. Whenever practicable, removal of existing asbestos insulation shall be performed by a shore facility or intermediate maintenance activity utilizing personnel who are part of an on going asbestos medical surveillance program. For many ships, repairs are required at sea when such services cannot be obtained. In these situations, the rip-out team shall be included in the forces afloat asbestos medical surveillance program as specified by BUMED and the following procedures shall be strictly followed:

1. **Initial Conditions.**

a. Using the information in paragraph 635-A.2, determine whether the insulation to be removed is asbestos or asbestos-free. If asbestos-free, follow paragraph 635-A.3. If there is any doubt, treat the material as if it is asbestos.

b. The Commanding Officer shall certify that the asbestos removal is required and shall designate a commissioned officer/petty officer trained in asbestos-removal procedures to directly supervise the rip-out and assure compliance with the safety requirements of this section.

WARNING

Before conducting this flame test insure that no flammable vapors or materials are present.

c. Ventilation in the area of the rip-out shall be secured or redirected such that a candle flame or match flame remains lighted anywhere within 3 feet of the repair area. Drapes and drop cloths shall be used to provide semi-isolation of the area.

d. All personnel inside the semi-isolated area and/or within 10 feet of the rip-out site shall wear respiratory equipment and protective clothing specified in paragraph 635-A6.4. Watch standers who must remain in the space but outside the semi-isolated area and/or the 10-foot boundary shall wear disposable respiratory protection specified in paragraph 635-B2.1.

e. Three personnel shall constitute each rip-out team. One, designated as the cutter shall moisten, cut and remove insulation. The second, designated as the cleaner, shall vacuum continuously in the vicinity of the rip-out and shall also share with the cutter the responsibility to moisten all cut surfaces to minimize the spread of dust. Third, a trained commissioned officer/petty officer shall directly supervise the operation and assist as required.

f. If and when air sampling equipment is provided, the cutter shall be equipped with an air sampler so an indication of airborne asbestos concentrations generated near the cutter's breathing zone can be obtained. After the rip-out is complete, the Medical Department representative shall forward this sample to the nearest activity, listed in Appendix D, for analysis. The Medical Department representative shall maintain a record of the individuals participating in the rip-out operation, the protective equipment/clothing utilized and, after the fact, the airborne concentration of asbestos fibers generated in the cutter's breathing zone will be recorded in the medical record of each participating individual. Watch standers required to remain in the space during rip-out operations shall be included in this record.

g. See paragraph 635-A.6.6c for requirements for maintaining thermal insulation during removal operations.

h. Vacuum cleaners equipped with a high efficiency purified air (HEPA) filter shall be provided for use during the rip-out.

i. Asbestos rip-out equipment and protective clothing are listed in Appendix C.

2. **Procedure.**

a. Moisten the surface to be cut. Carefully cut through the outer lagging using a knife or a Stryker cast cutter and moisten the cut with a sprayer. Avoid wetting areas not to be removed as this degrades the integrity of the remaining insulation.

b. Vacuum continuously in the region being cut so as to collect all dust as it is released. Avoid vacuuming water. Excessive water will ruin the HEPA filter.

c. Subsequent cuts shall be moistened with a sprayer as they are made. Proceed to carefully cut and remove the desired area. Cut and remove the insulation no faster than can be supported by vacuuming.

d. Place removed material in a properly labeled heavy-duty plastic bag.

e. Brush or scrape the de-insulated surfaces to remove any visible clinging asbestos debris. Vacuum thoroughly during this operation to collect all possible dust.

f. After insulation removal is complete, cover the bare ends of the remaining insulation with tape, plastic sheet or insulating mud to seal them thoroughly from the air. Vacuum all surfaces within the semi-isolated area, including the drapes and drop cloths, paying particular attention to surfaces below the rip-out site.

g. Remove drapes and drop cloths and discard as asbestos waste.

h. Thoroughly vacuum the outside of the vacuum cleaner.

i. Thoroughly vacuum disposable protective clothing before removal. Remove and discard as asbestos waste.

j. Discard watch standers disposable respiratory equipment as asbestos waste.

k. Place respiratory equipment used by the rip-out team in plastic bags and tag as contaminated with asbestos. Subsequently, this equipment can be cleaned by ships force. Clean all surfaces, inside and out. The individual performing the cleaning operation should wear a disposable respirator and insure no one is down wind from the cleaning operation.

l. The vacuum cleaner bag, filter and internals can be a significant asbestos exposure source. Follow the manufacturer's instructions explicitly in replacing the cleaner bag and/or filter. Discard the removed cleaner bag and/or filter as asbestos waste.

m. Place all asbestos waste in plastic bags, seal the bags and label with a standard CAUTION label (see Appendix E). If more than 50 miles from land, asbestos waste should be thrown overboard in weighted perforated bags. If in port or less than 50 miles from land, retain the wet-down sealed, labeled bags until return to port and transfer to an activity which has access to an authorized asbestos-disposal area. Contact the Port Control Officer, SOPA or the nearest Public Works Officer as appropriate.

n. Rip-out personnel shall utilize the nearest shower facilities to shower thoroughly after completing the work.

o. Re-establish normal ventilation.

p. Follow the procedures of paragraphs 635-A3, 635-A2.3, and 635-A2.5 for reinsulation with asbestos-free material.

635-A.5 REQUIREMENTS FOR HANDLING ASBESTOS THERMAL INSULATION BY SHORE ACTIVITIES. Shore-activity personnel involved in asbestos removal operations of any kind shall be part of an on going asbestos medical surveillance program.

1. **Initial Conditions.**

a. The shore activity shall conduct a detailed review of the repair work to be performed in order to pre-identify the insulation to be removed. This review should also include the planned ships force overhaul work package. Minimum impact on the overhaul will occur if the pre-identified asbestos removal operations are conducted during a pre-overhaul availability or at the start of the overhaul.

b. Since it is difficult to identify asbestos, rip-out operations must proceed on the assumption that asbestos is present unless it is suitably marked, identified as non-asbestos (see paragraph 635-A.2) or can be shown to be non-asbestos by means of electron microscopy, dispersion staining or X-ray diffraction analysis techniques.

c. To minimize the disruptive effect of asbestos removal on ships, it is essential that each asbestos removal operation be carefully planned and staged. As a minimum, pre-planning shall include the following:

(1) Personnel training
(2) Schedule to minimize impact on other work
(3) Pre-stage ventilation and air supply equipment
(4) Pre-stage protective clothing/equipment
(5) Pre-stage rip-out equipment
(6) Pre-stage disposal material
(7) Prepare work space for rip-out
(8) Establish rip-out boundaries and control points
(9) Decontamination procedures
(10) Air sampling procedures
(11) Clean up and work space clearance procedures.

2. **Permissible Exposure Limits.** The maximum time weighted average (TWA) airborne concentration of asbestos fibers to which unprotected personnel may be exposed, over an 8-hour interval, shall not exceed two fibers longer than 5 micrometers per cubic centimeter of air. In addition, unprotected personnel shall not be exposed to airborne concentrations of asbestos in excess of 10 fibers longer than 5 micrometers per cubic centimeter of air for any length of time.

635-A.6 CONTROL MEASURES. Engineering controls such as, but not limited to, isolation, enclosure, local/general exhaust ventilation, and dust collection, shall be used to meet the exposure limits prescribed in paragraph 635-A.5.2. Engineering controls specified below will also permit compliance with the National Emission Standards (that is, no visible discharge of asbestos fibers to the ambient atmosphere).

1. **Ventilation**

a. Local exhaust ventilation control measures and dust collection systems shall be designed, constructed, installed and maintained in accordance with the American Conference of Governmental Industrial Hygienists (ACGIH) Ventilation Manual or the American National Standard: Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1971, available from the American National Standards Institute, 1430 Broadway, New York, NY 10018.

b. All power-operated tools which may produce or release asbestos fibers in excess of the permissible exposure concentrations shall be provided with a local exhaust ventilation system or shall be used with a HEPA equipped vacuum cleaner.

c. Ventilation systems used to control asbestos exposures or emissions cannot be directly exhausted to the work space or atmosphere. The use of high efficiency particulate air (HEPA) filters with pre-filters, or other collection systems approved by an industrial hygienist, is required to prevent the inadvertent production of an exposure hazard.

d. Exhaust filtration systems must be meticulously maintained to prevent performance degradation, of the ventilation system as a whole. Such maintenance work must be done in accordance with the provisions of this manual.

e. To the extent feasible, fixed local exhaust ventilation connected to HEPA or other approved filters should be provided at the point of airborne fiber generation. Capture velocities must be high enough to entrain generated fibers under the specific environmental conditions. Duct transport velocities must be high enough to prevent accumulation of fibers in the duct, and clean-out points must be provided for necessary periodic maintenance as in paragraph 635-A6.1d above. Specific equipment design parameters (such as requirements for static pressure monitors), as well as protective clothing/respiratory protection and system servicing procedures for each operation, must be provided or approved by the cognizant industrial hygienist.

2. **Personal Protective Equipment.** Controls are prescribed for use of personal protective equipment. Compliance with permissible exposure limits shall not be achieved by the use of respirators except:

a. During the period necessary to commence industrial hygiene control measures.

b. In work situations where the control methods specified are either technically not feasible or feasible to an extent insufficient to reduce the airborne concentrations of asbestos below the acceptable limit.

c. During emergencies.

3. **Respiratory Protection.** A respirator program shall be established as described in the requirements of the American National Standard: Practices for Respiratory Protection, ANSI Z88.2 1969, as embodied in the Code of Federal Regulations, Title 29, Section 1910.134. The program shall include, as a minimum, requirements for sanitization (wash in a mild antiseptic or soap solution, air dry and package in a poly bag), storage in a clean, cool and dry environment and periodic visible examination for broken or cracked components. Personnel performing asbestos rip-outs which generate airborne asbestos fiber concentrations exceeding the permissible exposure limits shall be provided with respiratory protection which provides for full protection of the nose, mouth and respiratory system. This requirement shall be met by use of a respirator approved for protection against exposure to asbestos by the Mine Safety and Health Administration (MSHA, formerly MESA) or the National Institute for Occupational Safety and Health (NIOSH).

a. A guide to approved respirators is included as Appendix B.

NOTE: An oxygen breathing apparatus (OBA) as specified in chapter 079, Damage Control, may be utilized during emergency operations, but is not intended for routine use.

b. Breathing air and/or sources of breathing air for self-contained breathing apparatus and supplied air respirators must conform to the requirements found in the following documents: 29 CFR 1910.134(d); Federal Specification BB-A-1034a, as amended; NAVFACINST 11300.24 series.

4. **Protective Clothing.** Personnel engaged in handling asbestos-containing materials during rip-out operations, or in situations where emission of airborne fibers in excess of the permissible exposure limits is likely, shall wear the protective clothing/equipment. (See Appendix C). See note for discussion of protective clothing requirements for asbestos removal operations in naval nuclear power ships.

a. Full-body, one-piece disposable coveralls (preferably constructed of Tyvek material, or material comparable in weight, strength, and resistance to penetration by asbestos) over cloth coveralls supplied and laundered by the Navy.

b. Hoods (head coverings) shall extend beyond the collar of the coverall, completely protecting the neck area. The hood should be Tyvek material, or a comparable substitute. Use of a Tyvek coverall with attached hood is highly desirable.

c. Hand protection shall be achieved by the use of two pairs of gloves, one of which must prove an impermeable barrier to asbestos fibers. In addition, one pair of gloves should have a gauntlet to protect the area above the wrist and, when taped to the Tyvek coveralls, provide sufficient elbow room to preclude tearing the coveralls.

d. Slip-resistant plastic shoe covers, or heavy polyethylene shoe covers with slip-resistant soles, or light weight rubber boots.

e. Safety glasses with side shields or a full length face shield when full-face respirators are not in use.

f. A Type "C", continuous flow or pressure-demand, supplied air respirator or equivalent, during rip-out operations.

> **NOTE:** The proper use of protective clothing requires that all openings be closed and the garments fit snugly about the neck, wrists, and ankles. Accordingly, the wrist and ankle junctions, as well as the collar opening on the outer disposable coveralls, shall be taped, as necessary, to prevent contamination of skin and underclothing; this should be done in such fashion as to minimize restriction of physical movement.

An apparent conflict may exist between asbestos protective clothing requirements and the requirements for radiological control as contained in NAVSEA 0389-LP-028-8000, **Radiological Controls for Shipyards**, or NAVSEA 0389-LP-015-3000, **Radiological Controls**. RADCON protective clothing and respiratory protection plus TYVEK disposable coveralls worn over Anti-C clothing are deemed effective for asbestos removal operations in radiologically controlled areas. TYVEK disposable coveralls shall be handled as solid radioactive waste if radiologically contaminated, otherwise dispose of as asbestos waste. Anti-Cs must be laundered in accordance with radiological control procedures whether contaminated with asbestos dust or not.

5. **Change Rooms.**

a. At any fixed place of employment, change rooms and shower facilities shall be provided when exposure to the airborne concentration of asbestos fibers is in excess of the permissible limit. (See paragraph 635-A.5.2.)

b. Under ideal conditions, the change room facility will be positioned near the work site.

c. The change room facility shall be arranged/constructed so as to achieve a unique traffic pattern. (See figure 635-A1.)

WARNING

> Street clothing must not become contaminated with asbestos fibers.

d. Change areas for street clothing and work clothing shall be separated to prevent contamination of street clothing. Each separate change area shall have individual lockers for temporary stowage of clothing. See figure 635-A1 for details regarding a typical change room.

e. Heating/cooling/ventilation should be designed to exhaust from the work clothes change area.

f. The following sequence shall be adhered to during asbestos rip-out operations:

(1) Enter the street clothes change area of the change room facility; remove street clothes and store in lockers provided.

(2) Proceed to the work clothes change area and don cloth work coveralls. Depending on weather and distance to the work site, new disposable coveralls may be put on in this change area.

3. Proceed to the work site entry control point. A properly established asbestos rip-out control area will:

(a) Have clearly established boundaries.

(b) Within the boundary, operate with a slight negative pressure caused by exhaust ventilation. In large ships (such as carriers) it may be necessary to supply make up air and filtered exhaust to insure contaminated air remains in the work space.

(c) Permit isolation of existing ventilation supply and exhaust lines.

(d) Require controlled access to and from the space.

(e) Allow for a protective clothing/equipment staging and check-out area immediately adjacent to the controlled area.

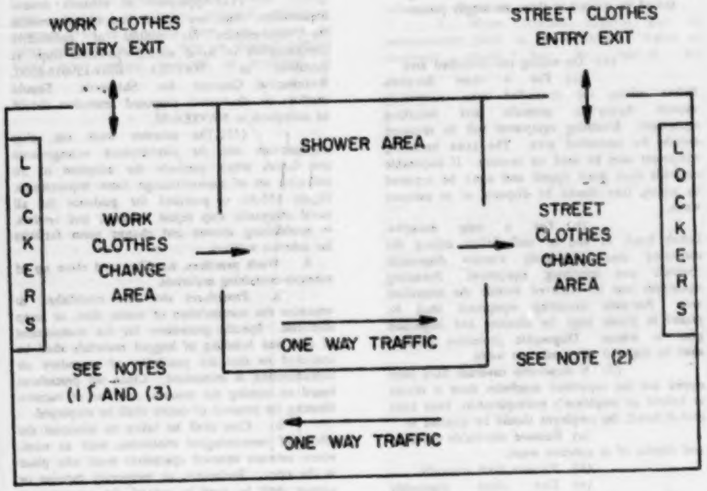
(f) Provide for a semi-isolable space immediately inside the boundary area for protective clothing (including breathing equipment) decontamination (vacuuming) and removal.

(g) Provide for one man to be stationed at the entry control point to control access, check protective clothing and equipment and assist in decontamination and clothing removal operations for personnel exiting the controlled area.

(4) Prior to entering the asbestos rip-out control area, employee dons the personal protective clothing (paragraph 635-A.6.4) and respiratory equipment (paragraph 635-B.2.3) specified or as specified by the local industrial hygienist.

> **NOTE:** Supervisor and inspection personnel entering an asbestos rip-out control area for short period of time (15 minutes or less) for purposes of determining work process, compliance with asbestos controls or taking required readings shall comply with all respiratory and protective clothing requirements except change room requirements.

(5) Prior to entering the asbestos rip-out control area, the employee's protective clothing and equipment shall be checked for completeness and operability.


WORK CLOTHES
ENTRY EXIT
STREET CLOTHES
ENTRY EXIT
SHOWER AREA
LOCKERS
WORK
CLOTHES
CHANGE
AREA
STREET
CLOTHES
CHANGE
AREA
LOCKERS
ONE WAY TRAFFIC
SEE NOTES
(1) AND (3)
SEE NOTE (2)
ONE WAY TRAFFIC

NOTES:

(1) COVERALLS TO BE LAUNDERED. BAGGING AND TAGGING REQUIRED.

(2) CLEAN CLOTH COVERALLS.

(3) DEPENDING ON WEATHER AND DISTANCE TO WORKSITE, NEW DISPOSABLE COVERALLS MAY BE DONNED IN THIS AREA. WORKSITE ENTRY POINT MUST ALSO BE STAGED WITH DISPOSABLE COVERALLS.

Figure 635-A1. Typical Change Room

NOTE: Initial work site preparations should include placement of a sufficient number of breathing air supplies to minimize work site interference. In addition, several air supply points should be provided between the work site and the entry/exit point of the controlled area. Quick disconnect fittings should be utilized at these air supply points.

(6) On exiting the controlled area

(a) For a short duration. Before exiting the controlled area, completely vacuum disposable coveralls and breathing equipment. Breathing equipment will be removed outside the controlled area. The same breathing equipment may be used on re-entry. If disposable coveralls have been ripped and can't be repaired by taping, they should be disposed of as asbestos waste.

(b) For a long duration. Lunch break or end of shift--Before exiting the controlled area, completely vacuum disposable coveralls and breathing equipment. Breathing equipment will be removed outside the controlled area. Reusable breathing equipment shall be placed in plastic bags for cleaning and inspection prior to reissue. Disposable protective clothing shall be disposed of as asbestos waste.

(7) If disposable coveralls have been ripped and the supervisor concludes there is reason to believe an employee's undergarments, have been contaminated, the employee should be directed to:

(a) Remove disposable coveralls and dispose of as asbestos waste.

(b) Vacuum cloth coveralls.

(c) Don clean disposable coveralls if returning to work. Otherwise, proceed to change/shower area, bag and tag cloth coveralls for laundry in accordance with paragraph 635-E.4 and shower prior to changing to street clothes.

(8) Employee proceeds to the work clothes change area, removes cloth coveralls and stores in lockers provided or bags and tags cloth coveralls for laundering. Activity should specify laundering frequency. Laundering of asbestos-contaminated clothing shall be done so as to prevent release of airborne asbestos fibers in excess of the permissible exposure limits. Anyone giving asbestos-contaminated clothing to another person for laundering shall inform such person of the requirement to effectively prevent the release of asbestos in excess of the permissible exposure limits. Asbestos-contaminated clothing shall be transported in sealed impermeable bags or containers to which is affixed the standard CAUTION label. Contracts for laundering asbestos-contaminated clothing shall specifically require the cleaning contractor to comply with all necessary precautions for the handling of asbestos-contaminated clothing.

(9) Take a shower if previously directed by a supervisor, otherwise pass through the shower area to the street clothes change area.

(10) Don street clothes.

(11) Application of asbestos-control requirements must not be allowed to compromise the requirements for control of radioactive contamination in naval nuclear-powered ships as contained in NAVSEA 0389-LP-028-8000, Radiological Controls for Shipyards. Should conflicts be discovered, proposed resolution should be submitted to NAVSEA-08.

(12) The asbestos work site, ship configuration and the pier/drydock arrangements are factors which preclude the adoption of an inflexible set of shower/change room requirements. Figure 635-A1 is provided for guidance for all naval shipyards, ship repair facilities, and tenders, in establishing shower and change room facilities for asbestos workers.

6. **Work practices, handling, and clean up of asbestos-containing materials.**

a. Procedures shall be established to minimize the accumulation of waste, dust, or scrap materials. Specific procedures for the containment of dust and handling of bagged materials shall be instituted so that the possibility of secondary air contamination is minimized. Clean up procedures based on wetting the material and use of vacuum cleaning for removal of debris shall be employed.

b. Care shall be taken to minimize the effects of meteorological conditions, such as wind, where asbestos removal operations must take place in the open. Enclosures, or temporary curtains or screens shall be used to control the amount and velocity of air moving through the workplace whenever possible.

c. As practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the permissible concentrations. If thermal insulation is to be removed from metal surfaces of systems covered by NAVSEA Instruction C9210.4 (Category I) or NAVSEA 0959-LP-038-3000, protect other insulated surfaces in the vicinity of the rip-out to preclude moistening insulation that is not to be removed. A light spray of pure water, which shall be distilled, demineralized or of condensate quality, shall be used as needed to control emission of insulation dust. Use only the minimum amount of water needed. If thermal insulation is to be removed from metal surfaces of systems not covered by NAVSEA Instruction C9210.4 (Category

1) or NAVSEA 0959-LP-058-1000, potable water (or better) shall be used with a small amount of detergent added, if desired, to improve the wetting characteristics.

d. No asbestos cement, mortar coating, grout, plaster, or similar material containing asbestos shall be removed from bags, cartons, or other containers in which they are shipped without being either wetted, enclosed, or ventilated to prevent the release of airborne asbestos fibers in excess of the permissible exposure limits.

e. All external surfaces in places of employment shall be maintained free of visible accumulations of asbestos fibers to prevent subsequent dispersion.

f. Major asbestos removal sites or containments (that is, more than 8 hours in duration) should not be opened for unrestricted/unprotected access unless and until an air sample reading of 0.5 fibers/cc or less has been obtained. A series of minor rip-outs shall not be employed to avoid the control requirements associated with a major rip-out. Major asbestos removal operations shall not be performed at sea.

g. Minor asbestos removal sites or containments (that is, less then 8 hours in duration) may be opened to unrestricted/unprotected access based on an industrial hygienist's assessment of the effectiveness of the engineering controls utilized and experience with similar asbestos removal operations. In doubtful situations, the air sample criteria of 0.5 fibers/cc shall be used. Minor asbestos removal operations conducted at sea shall be performed in accordance with paragraph 635-A4.

7. Disposal procedures.

a. Asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing consigned for disposal, which may produce in any reasonably foreseeable use, handling, storage, processing, disposal, or transportation, airborne concentrations of asbestos fibers in excess of the permissible exposure limits shall be collected and disposed of in sealed impermeable bags, or other closed, impermeable containers and labeled in accordance with paragraph 635-E6. Transportation of asbestos waste, including piping or other debris resulting from demolition, shall be conducted in a manner that does not release airborne asbestos fibers. Prior to placing in bags, asbestos wastes shall be wet down to reduce airborne concentrations.

b. Asbestos waste bags, containers and dumpsters shall be distinctively color-coded to assure easy recognition. Dumpsters and containers shall be labeled **ASBESTOS WASTE ONLY** or otherwise marked in accordance with paragraph 635-E3. Care must be exercised in order to prevent bags and other containers from rupturing when being moved to a dumpster or other suitable vehicle for transport to a proper disposal site.

c. Asbestos materials, properly contained and disposed of in an approved sanitary landfill operated in accordance with 40 CFR 241 guidelines, should not pose a hazard to human health or the environment. For guidance concerning specific environmental questions, or applicable local regulations, consult the Hazardous Waste Disposal Guide, Navy Environmental Support Office publication NESO 20.2-011 of December 1976, Part IV: Directory of Contacts for Disposal Assistance.

635-A.7 CONTROL MEASURES FOR GASKET CUTTING OPERATIONS. The conscientious application of engineering controls will preclude exposure to concentrations of airborne asbestos fibers exceeding the medical surveillance action level (0.5 fibers/cc) specified in OPNAV Instruction 6260.1( ).

1. Gasket stowage.

a. Some asbestos containing gasket materials, primarily flexitallic gaskets, can generate dust when stored in a loose bulk condition. Large quantities of dust producing gasket materials should be stored in sealed containers. Small quantities of dust producing gasket materials do not require special storage methods provided good housekeeping measures are employed. Determination of what constitutes a large or a small quantity shall be made by the activity, taking into account the amount/type of material and the particular storage conditions.

b. Use a HEPA equipped vacuum unit, approved for asbestos work, to periodically clean unsealed gasket storage/issue areas to prevent accumulation of dust.

c. Post storage areas with asbestos caution/notice signs to advise personnel of the presence of asbestos containing materials.

2. Hand manufacturing operations:

a. Hand punching, shaping and hand operated mechanical punching, when done in quantity, shall be accomplished in designated work areas which are posted as asbestos work areas. Neither respiratory protection nor protective clothing are required provided a HEPA equipped vacuum unit, approved for asbestos work, is used periodically during the operation to remove visible dust and small particles of gasket residue. Prohibit the stowage/consumption of food or beverages within posted work areas. During operations, access to the work area shall be controlled. Dry sweeping or compressed air blowdown is not permitted. Scrap gasket material will be disposed of as asbestos waste. Require personnel to wash their hands before eating or drinking and upon completing gasket punching/shaping operations.

b. Hand shaping and punching may be performed at incidental work sites to meet a specific limited need. In these situations, no special controls are required except that scrap materials shall be disposed of as asbestos waste.

3. Machine punching, shearing and nibbling operations.

a. Where power operated machines used for gasket manufacture are equipped with local exhaust ventilation sufficient to maintain dust levels below the 0.5 fiber/cc medical surveillance action level, no special respiratory protection or protective clothing is required.

b. Where power operated machines used for gasket manufacture are not equipped with local exhaust ventilation sufficient to maintain dust levels below the 0.5 fiber/cc medical surveillance action level, the following is required:

(1) Use NIOSH; MSHA or MESA respirators approved for asbestos use. (Single use disposable respirator or respirator specified by an industrial hygienist.)

(2) Disposable coveralls, head covers and foot covers shall be used. Coveralls shall be sealed at the neck, wrists and ankles.

(3) Before removing respiratory protection, the working area and disposable coveralls shall be thoroughly vacuumed. Disposable coveralls shall be treated as asbestos waste.

(4) During operations, the work area shall be posted and access to the work area shall be controlled.

c. For sub-paragraphs 635-A7.3a and 635-A7.3b above: A HEPA equipped vacuum unit, approved for asbestos use, shall be used to thoroughly clean the area and maintain good housekeeping; scrap material shall be disposed of as asbestos waste; the stowage/consumption of food or beverages is prohibited; personnel are required to wash their hands before eating/drinking and upon completion of gasket operations; dry sweeping or compressed air blowdown is not permitted.

4. **Gasket Installation.** No special controls required.

5. **Gasket removal.** No special precautions required; however, if scrapers are used to remove gasket residue, the gasket should be wet down first.

6. The above measures represent the minimum requirements and do not preclude the imposition of more stringent requirements based on local experience.

635-A.8 ENVIRONMENTAL MONITORING.

Samples shall be taken and measured under the technical supervision of an industrial hygienist.

1. **Method of measurement.** All determinations of airborne concentrations of asbestos fibers shall be made by the open-face membrane filter method at 400-450 magnification, using phase contrast illumination, with sample mounted in high viscosity solution of membrane filter material. If the material which is suspected of being the source of the airborne fibers is known to contain asbestos then all airborne fibers (fibers having an aspect ratio of 3:1, and longer than 5 micrometers) are to be counted as asbestos fibers. Filters should be precounted to determine the average background count. Persons counting filters shall be judged proficient by successful participation in the NIOSH Proficiency Analytical Testing (PAT) program. Persons performing dispersion staining to differentiate between asbestos and non-asbestos fibers shall be specifically trained in this technique. Their proficiency shall be verified with standard laboratory quality control techniques approved by the Navy Environmental Health Center. Only phase-contrast microscopes especially set up for asbestos counting shall be utilized.

2. **Monitoring.** An environmental monitoring plan shall be established to characterize airborne asbestos levels of all operations and assess the effectiveness of engineering controls. Within a class/category of similar operations, sampling shall be of such frequency and pattern to accurately and reproducibly represent the airborne levels produced by a typical operation within a class/category. An asbestos rip-out shall be considered similar to a previous operation if, in the opinion of an industrial hygienist, the size of the rip-out is comparable to previous rip-outs and the work is performed by trained personnel utilizing the same engineering controls and work practices. Sampling of areas where repetitious; similar or minor asbestos work is performed shall be at intervals of 6 months or less, to verify that the work site/operation has remained in the same class/category. Each nonrepetitious or major asbestos removal operation will require an air sample to be taken upon completion of the operation to verify that clean up operations were effective and the area is safe for personnel to enter without protective equipment. A major asbestos removal operation is defined as an operation requiring more than 8 hours to accomplish. A minor asbestos removal operation can be accomplished in less than 8 hours. Environmental monitoring records which represent the maximum potential exposure of workers involved with asbestos removal operations shall be retained for a period of at least 40 years.

> **NOTE:** Details of techniques and requirements of the foregoing are provided through contact with activities delineated in Appendix D.

635-A.9 MEDICAL REQUIREMENTS.

1. Medical requirements are addressed in OPNAV Instruction 6260.1A.

APPENDIX B. RESPIRATORY PROTECTION

635-B.1 RESPIRATORY PROTECTION FOR INSULATION OPERATIONS

1. Compliance with permissible exposure limits shall not be achieved by the use of respirators except under the following conditions:

a. During the time period necessary to commence engineering control measures.

b. In work situations in which the control methods prescribed are not technically feasible, or feasible only to an extent insufficient to reduce the airborne concentration of asbestos fibers below the maximum permissible limit.

c. During emergencies.

2. A respirator program shall be established as described in the requirements of the American National Standards. Practices for Respiratory Protection, ANSI Z88.2-1969 (available from the American National Standards Institute, 1430 Broadway, New York, NY 10018), as embodied in the Code of Federal Regulations, Title 29, Section 1910.134. See paragraph 635-A.6.3 for minimum respirator program requirements.

3. Where a respirator is required, it shall be selected from those approved for protection against exposure to asbestos by the Mining Enforcement and Safety Administration (MESA), or Mine Safety and Health Administration (MSHA), or the National Institute for Occupational Safety and Health (NIOSH).

4. A person shall not be assigned to tasks requiring the use of respirators if, based upon his most recent medical examination, an examining physician determines the person will be unable to function normally wearing a respirator, or the safety or health of the person or other personnel will be impaired by his use of a respirator.

635-B.2 RESPIRATOR SELECTION GUIDE

1. **Reusable or disposable, single use air purifying respirators.** Reusable or disposable single use air purifying respirators should be NIOSH/MESA/MSHA approved for protection against pneumoconiosis and fibrosis-producing dusts, including asbestos. They shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the permissible exposure concentrations, when the ceiling or the 8 hour, time-weighted average concentration of asbestos fibers is reasonably expected to exceed no more than 10 times the limit. This type of respirator is not approved for use during asbestos rip-out operations. Table 635-B1 provides a listing of approved disposable, single-use air purifying respirators. Table 635-B2 lists approved reusable air purifying respirators. Table 635-B5 lists manufacturers and distributors.

2. **Powered air purifying respirator.** A NIOSH/MESA/MSHA approved full facepiece powered air purifying respirator, or a powered air purifying respirator shall be used to reduce the concentration of airborne asbestos fibers in the respirator below the permissible exposure concentration when the ceiling or the 8 hour time-weighted average concentration of asbestos fibers is reasonably expected to exceed 10 times, but not 100 times, the limit. Currently these types of respirators are not approved for use during asbestos rip-out operations. Table 635-B3 lists approved powered air purifying full face, half face, and hood type respirators. Table 635-B5 lists manufacturers and distributors.

3. **Type C continuous flow or pressure-demand supplied air respirators.** A NIOSH/MESA/MSHA Type "C" continuous flow or pressure-demand, supplied air respirator shall be used to reduce the concentration of airborne fibers in the respirator below the permissible exposure limit when the ceiling of 8 hour time-weighted average airborne concentration of asbestos fibers is reasonably expected to exceed 100 times these limits. This type of respirator is the only type currently approved for use during asbestos rip-out operations. However, an OBA may also be utilized. Table 635-B4 lists approved continuous flow (Type C) respirators and approved pressure-demand type supplied air respirators. Table 635-B5 lists manufacturers and distributors.

NOTE: The cognizant industrial hygienist should be requested to provide specific guidance relative to the type of respiratory protection required for a particular asbestos operation.

NOTE: Maintenance of NIOSH/MESA/MSHA approval of respiratory protection requires that the user adhere strictly to proper procedures for use of the device. This includes complying with requirements (as specified in the approval) for: (1) maximum filter use (in hours), (2) minimum air flow to the respirator (in cubic feet per minute CFM), (3) minimum air line pressure to the respirator in (PSIG), and (4) any other respirator use criteria as may be specified.

TABLE 635-B1

DISPOSABLE (SINGLE) DUST, FUME, AND MIST RESPIRATORS APPROVED BY NIOSH

Approval number TC-21C-	Approval Issued to	Model number(s)	Respirator type 1/	Facepiece type 2/	No. of filters
132	3M	8710	Su	ON	1
143	Willson	1400	Su	ON	1
147	AO	R1050	Su	ON	1
173	3M	8800	Su	ON	1
174	Binks	40-150	Su	ON	1

1/ Su - Single use filter

2/ ON - Orinasal

TABLE 635-B2

REUSABLE DUST, FUME, AND MIST RESPIRATORS APPROVED BY NIOSH

Approval number TC-21C-	Approval Issued to	Model number(s)	Respirator type 1/	Facepiece type 2/	No. of filters
133	MSA	459440	Rp	ON	2
134	MSA	459438 461011	Rp/Bm	ON	2
135	MSA	459439 461010	Rp/Bm	ON	2
140	Willson	1210	Rp	ON	2
141	Willson	1211	Rp	ON	2
142	Willson	1212	Rp	ON	2
144	AO	R5030	Rp	ON	2
145	AO	R6030	Rp	ON	2
149	Scott	662-1 662-2	Rp	FF	1
150	MSA	88479 457117	Rp	FF	1
151	Norton	7506 7506M	Rp	ON	2
152	Norton	7580 7580M	Rp	ON	2
153	Norton	7406L 7406LM	Rp	ON	1

TABLE 635-B2

REUSABLE DUST, FUME, AND MIST RESPIRATORS APPROVED BY NIOSH (Continued)

Approval number TC-21C-	Approval Issued to	Model number(s)	Respirator type 1/	Facepiece type 2/	No. of filters
154	Sellstrom	315-F100	Rp	ON	2
154	Cover	1482-F100	Rp	ON	2
154	Safe-Tex	236-F100	Rp	ON	2
154	Eastern	E-450	Rp	ON	2
155	MSA	460185	Rp	FF	2
158	Pulmosan	C263	Rp	ON	1
160	AO	R5057 R6057	Rp	ON	2
161	AO	R5056 R6056	Rp	ON	2
163	Cesco	94R20	Rp	ON	2
168	Norton	75BP80	Rp, Bm	ON	2
170A	Norton	7170	Ru	ON	1
171	Norton	7680 7680N	Rp	FF	2
176	3M	9900	Ru	ON	1
178	Scott	604022-50 6411-2050 6411-3050 6413-2050 6413-3050	Rp	ON	2
179	U.S. Safety	150T10	Rp	ON	2
180	Cesco	95RC15	Rp	ON	2

TABLE 635-B2

REUSABLE DUST, FUME, AND MIST RESPIRATORS APPROVED BY NIOSH (Continued)

Approval number TC-21C	Approval issued to	Model number(s)	Respirator type 1/	Facepiece type 2/	No. of filters
182	Willson	1610 1710	Rp	FF	2
183	Willson	1611 1711	Rp	FF	2
184	Willson	1612 1712	Rp	FF	2
187	MSA	461847	Rp	FF	2
188	MSA	461845	Rp	FF	2
190	3M	9910	Ru	ON	1

1/ Rp - replaceable filter
Bm - belt or back mounted
Ru - reusable filter
Pw - powered

2/ ON - Oronasal
FF - Full facepiece
H/H - Hood or helmet

TABLE 635-B3

POWERED AIR PURIFYING RESPIRATORS APPROVED BY NIOSH

Approval number TC-21C-	Approval Issued to	Model number(s)	Respirator type 1/	Facepiece type 2/	No. of filters
136A	3M	W250, W252, W254, W255, W260, W261, W266, W267, W278	Pw	H/H	1
186	MSA	463353, 463354, 463355	Pw	ON, FF	2

1/ Rp - replaceable filter
Bm - belt or back mounted
Ru - reusable filter
Pw - powered

2/ ON - Orinasal
FF - Full facepiece
H/H - Hood or helmet

TABLE 635-B4. SUPPLIED AIR RESPIRATORS APPROVED BY NIOSH

Approval Number TC-19C-	Approval Issued to	Model number(s)	Respirator type	Air Flow class	Regulator or valve location	Face-piece type	Hose length, ft.	Pressure range, psi.
64	Cesco	PI-800	C, CE	Cf	Bm	HH	15-50 75-100	6-17 7-20
64	U.S. Safety	PI-800	C, CE	Cf	Bm	HH	15-50 75-100	6-17 7-20
67	SurvivAir	9011-13 9811-13	C	Pd	Fm	FF	4-250	50-125
68	SurvivAir	9011-15 9811-15	C	Pd	Fm	FF	4-250	50-125
69	3M	W-810 W-840 W-856 W-870 W-275 W-280	C, CE	Cf	Bm	HH	25-300	50-90
70	3M	W-820 W-880 W-881 W-888 W-890 W-276 W-281	C, CE	Cf	Bm	HH	25-100	65-90
71	Scott	4616-11, -12, -15, -21, -22, -25, 4622 -11, -12, -15, -21, -22, -25	C	Cf	Fm	ON, FF	15-50 50-250	12-25 25-40

TABLE 635-B4. SUPPLIED AIR RESPIRATORS APPROVED BY NIOSH (Continued)

Approval Number TC-19C-	Approval Issued to	Model number(s)	Respirator type	Air Flow class	Regulator or valve location	Face-piece type	Hose length, ft.	Pressure range, psi.
72	Scott	4616-18, -19, -28, -29, 4622 -18, -19, -28, -29	C	Cf	Fm	ON, FF	15-20	6-16
73	Scott	802230	C	Cf	Fm	FF	25-250	60-125
74	Scott	801548	C	Pd	Fm	FF	3-250	60-125
78	MSA	460862, 460863, 460864, 460865, 461708, 461717, 461718, 461719,	C	Cf	Bm	ON, FF	25-300	35-40
79	Encon	6400	C, CE	Cf	Bm	HH	25-50	70-90
80	MSA	460903, 460904, 460905, 460906, 461709, 461710, 461711, 461712	C	Cf	Bm	HH	25-300	55-60

TABLE 635-B4. SUPPLIED AIR RESPIRATORS APPROVED BY NIOSH (Continued)

Approval Number TC-19C-	Approval Issued to	Model number(s)	Respirator type	Air Flow class	Regulator or valve location	Face-piece type	Hose length, ft.	Pressure range, psi.
81	MSA	460907, 460908, 460909, 460910 461713, 461714, 461715, 461716	CE	Cf	Bm	HH	25-300	55-60
82	Pulmosan	AL180-10168	C	Cf	Bm	FF	15-50	10-20
83	Willson	1810 1820	C	Cf	Bm	ON	15-100 100-300	10-32 21-50
84	Bullard	46,77	C, CE	Cf	Bm	HH	25-200	80-95
84	Anderson	46,77	C, CE	Cf	Bm	HH	25-200	80-95
84	Sanstorm/ Bowen Tools	46,77	C, CE	Cf	Bm	HH	25-200	80-95
84	Pauli and Griffin	45,77	C, CE	Cf	Bm	HH	25-200	80-95
84	Empire	46,77	C, CE	Cf	Bm	HH	25-200	80-95
84	Kelco	46,77	C, CE	Cf	Bm	HH	25-200	80-95
84	Quaker State Machine and Supply	46,77	C, CE	Cf	Bm	HH	25-200	80-95

TABLE 635-B4. SUPPLIED AIR RESPIRATORS APPROVED BY NIOSH (Continued)

Approval Number TC-19C-	Approval Issued to	Model number(s)	Respirator type	Air Flow class	Regulator or valve location	Face-piece type	Hose length, ft.	Pressure range, psi.
84	Deane & Co.	46,77	C, CE	Cf	Bm	HH	25-200	80-95
84	Sanstorm/ Bowen Tools	46,77	C, CE	Cf	Bm	HH	25-200	80-95
85	Clemco	PCE	C, CE	Cf	Bm	HH	25-200	80-95
86	AO	R6099	C	Cf	Bm	ON	12.5-75 100-175 200-300	7-15 13-25 18-35
87	3M	W-270, W-271 W-272, W-274 W-277, W-282	C	Cf	Bm	HH	25-100	60-70
88	Binks	40-160	C	Cf	Bm	ON	25-300	35-40
89	AO	R56001	C	Cf	Bm	HH	12.5-25 50-100 125-100 225-300	10-18 18-30 18-30 35-60
91	Robertshaw Controls	900-002-264 -01, -02, -03, -04, -11, -12, -13, -14	C	Pd	Fm	ON, FF	25-250	50-125
92	Globe	2185-6 2185-4	C	Cf	Fm	FF	25-200	60-70
93	MSA	89104, 461669, 461699, 461700	C	Pd	Bm	FF	25-300	80-100

TABLE 635-B4. SUPPLIED AIR RESPIRATORS APPROVED BY NIOSH (Continued)

Approval Number TC-19C-	Approval Issued to	Model number(s)	Respirator type	Air Flow class	Regulator or valve location	Face-piece type	Hose length, ft.	Pressure range, psi.
94	Willson	1850, 1860	C	Cf	Bm	FF	15-100 100-300	11-32 21-50
95	Pulmosan	AL330	C	Cf	Bm	ON	15-50	20-40
96	Cesco	801	C, CE	Cf	Bm	HH	15-100	60-100
96	U.S. Safety	801	C, CE	Cf	Bm	HH	15-100	60-100
97	Scott	802280-01 -02, -05, -06, -09, -10, -13, -14	C	Cf	Fm	ON	3-250	60-125
98	Scott	8022280-03 -04, -07, -08, -11, -12, -15, -16	C	Pd	Fm	ON	3-250	60-125

Respirator Type:
C - Air line
CE - Air line–abrasive

Airflow Class:
Cf - Continuous flow
Pd - Pressure-demand

Regulator or valve location:
Fm - Facepiece mounted
Bm - Belt, chest, or side mounted

Facepiece Type:
ON - Oronasal
FF - Full facepiece
HH - Hood or helmet

TABLE 635-B5

NAMES AND ADDRESSES OF MANUFACTURERS AND DISTRIBUTORS

American Optical Corp., (AO) Safety Products Div., 100 Canal St., Putnam, CT 06260.

Anderson Manufacturing Co., 1014 Fox Chase Road, Rockledge, PA 19111.

Binks Manufacturing Co., 9201 W. Belmont Ave., Franklin Park, IL 60121.

Bullard, E. D., Co., 2680 Bridgeway, Sausalito, CA 94965.

Cesco Safety Products, Parmalee Industries, Inc., P. O. Box 1237, Kansas City, MO 64141.

Clemco Industries, 2177 Jerrold Ave., San Francisco, CA 94124.

Cover, H. S. Co., 107 East Alexander St., Buchanan, MI 49107.

Deane & Company, 190 Oneida Drive, Pt. Claire, Quebec, Canada.

Eastern Safety Equipment Co., 45-17 Pearson St., Long Island City, NY 11101.

Empire Abrasive Equipment Corp., 9990 Gantry Road, Philadelphia, PA 19115.

Encon Manufacturing Co., 4914 Dickson St., Houston, TX 77007.

Globe Safety Products, Inc., 125 Sunrise Place, Dayton, OH 45407.

Kelco Sales & Engineering Co., P. O. Box 422, Norwalk, CA 90650.

Mine Safety Appliances Co., (MSA) 400 Penn Center Blvd., Pittsburgh, PA 15235.

3M Company, 3M Center, St. Paul, MN 55101.

Norton Safety Products, 2000 Plainfield Pike, Cranston, RI 02920.

Pauli & Griffin, 137 Utah Avenue, South San Francisco, CA 18956.

Pulmosan Safety Equipment Corp., 30-48 Linden Place, Flushing, NY 11354.

Quaker State Machine & Supply Co., P. O. Box 605, Rushland, PA 18956.

Robertshaw Controls Company, 333 North Euclid Way, Anaheim, CA 92803.

Safe-Tex, Toronto, Ontario, Canada.

Sanstorm/Bowen Tools, Inc., P. O. Box 3186, Houston, TX 77001.

Scott Aviation, Division of ATO, Inc., Lancaster, NY 14086.

Sellstrom Manufacturing Co., 59 E. Van Buren St., Chicago, IL 60605.

SurvivAir, Division of U.S. Divers Co., 3323 W. Warner Ave., Santa Ana, CA 92702.

United States Safety Service, Parmalee Industries, Inc., P. O. Box 1237, Kansas City, MO 64141.

Willson Products Div., ESB Inc., P. O. Box 622, Reading, PA 19603.

APPENDIX C. PERSONNEL PROTECTIVE CLOTHING AND EQUIPMENT LIST FOR USE WHEN REMOVING THERMAL ASBESTOS INSULATION MATERIAL

635-C.1 GENERAL

1. Equipment quantities are predicated on one 3-man team. Personnel who wear glasses should not be assigned to asbestos removal teams because of problems with respirator fit.

NOTE: Based on Fleet inputs, ships allowance lists are being changed to reflect required quantities of asbestos removal equipment and protective clothing. Initial outfitting will be funded by NAVSEA. This appendix will be cancelled when shipboard allowance lists have been revised.

2. Cleaning and maintenance functions will be required for the reusable equipment to insure that it is free of asbestos contamination and operating properly. Specific guidance in this regard will be incorporated in Fleet Orientation Training programs presented by the Environmental and Preventive Medicine Units (EPMUs).

3. For equipment and clothing without NSNs, only specified items or their equivalents are authorized. Any questions regarding the list can be directed to the nearest EPMU or the Navy Environmental Health Center.

4. It is noted that a plan for an ambient shipboard asbestos environmental air sampling program is under development by BUMED. When plan is finalized all concerned will be apprised.

635-C.2 OVERALLS. (Both disposable and nondisposable are required.)

1. Disposable Type. (Recommended Quantity = 72 pair)

Sack suit with shoes; draw string neck; elastic sleeve; white; TYVEK: nonporous.

Style: 2126S
Prod. No.: 160305
Sizes: L, XL (XL add 10%)
Units/Case: 24

Case Lot	Price/Garment
1	$4.86
2-11	4.50
12-23	4.28
24-119	4.07
119+	3.87

Manufacturer: DURAFAB INC.
P. O. Box 658
Cleburne, Texas 76031

2. Nondisposable Type: (Recommended Quantity = 15 pair)

Coveralls, cotton, nondisposable (to be worn under disposable clothing).

Sizes	NSN	Cost
L	9D 8405-00-131-6509	12.20

After use, cotton coveralls are to be bagged and tagged as potentially contaminated with asbestos fibers. Coveralls are to be laundered separately. Laundrymen shall wear a 3M-8710 disposable respirator while handling dry unwashed coveralls.

635-C.3 PROTECTIVE FOOTWEAR: (Recommended Quantity = 6 pair)

1. Rubber Boots (overshoe): Style: Logan PVC modeled; 11" tall; over approved safety shoe/boot.

Sizes	Stock No.	Cost
7 thru 14	Model 726C	$8.55/PR

Manufacturer: UNIROYAL
Naugatuck,
Connecticut 06770

635-C.4 HAND PROTECTION.

Hand protection shall be achieved by using two pairs of gloves, one of which must provide an impermeable barrier to asbestos fibers. One pair of these gloves should have a gauntlet to protect the arm above the wrist and provide additional elbow room when taped to the sleeve of the Tyvek disposable coveralls. The below listed materials are illustrative of equipment which will satisfy the hand protection requirement. After use, gloves shall be disposed of as asbestos waste.

1. Gloves, plastic disposable: (Recommended Quantity = 100 pairs)

Natural color polyethylene plastic disposable gloves.
Semi-transparent gauntlet style.

Size	NSN	Cost
Medium	9D 8415-00-682-6786	$0.12 ea ($8.95/ 100)

2. Cotton gloves, welders, anti-flash: (Recommended Quantity = 100 pairs)

Gloves have a gauntlet which, when taped to the sleeves of the disposable coveralls, provided additional elbow room. GSA Contract No. 100-77-C-0876

NSN	Cost
9D 8415-00-268-8318	$1.75/pr

635-C.5 RESPIRATORY PROTECTION/ BREATHING AIR

1. Shore activities, see paragraph 635-A6.3b for breathing air requirements.

2. Submarine Emergency Air Breathing systems are acceptable sources for breathing air for at sea asbestos removal operations.

3. **Breathing Air:** (Recommended Quantity = 1) (Not authorized for submarines)

For shipboard breathing air supply an Ambient Air Breathing Apparatus (AABA) is suitable for atmospheres not immediately hazardous to life. Unit is powered by plant air (ship's LP compressor), completely portable, does not require carbon monoxide alarm and utilizes an oil-less low pressure pump. Weight is 77 pounds. Each unit can accommodate up to three airline respirators providing a minimum of 4 cubic feet/min flow through the respirator faceplate. Unit is designed for use with continuous flow airline respirators specified below. AABA intake must be located in an asbestos-free atmosphere. Suction hose, up to 100 feet, may be used without affecting AABA output.

Cost:	$725 each (Not on GSA Contract)
Product ID:	AABA
Manufacturer:	WILLSON PRODUCTS DIVISION ESB Inc. P. O. Box 622 Reading, Pennsylvania 19603

4. **Repair Parts for AABA.** (Not authorized for submarines)

MFR Part No.	Description	Cost
*M115	Inlet/Outlet replacement filter cartridge (used in two places on AABA)	$ 4.20
M116	Air Motor Rebuild Kit (with instructions) 4 Vanes 4 Vanes Springs 2 Push Pins 2 Bearings 1 Shaft Seal 3 Gaskets 1 O-Ring	$68.40
*M125	Inlet Filter Cover	$24.00
*M132	Vanes (4) used in Air Motor	$15.40
*M133	Vane Springs (4) used in Air Motor	$ 7.75
*M134	Vanes (4) used in Air Pump	$49.00

*Not authorized as part of initial outfitting

5. **Hoses:** **(Recommended Quantity - 8) (Not authorized for submarines)**

(8 per AABA) two for each respirator and two for connecting the ships LP air system to the AABA

Hose Length	**Cost**
50 Linear Feet	**$60.92 each**

Product ID: **R714-50**
GSA Contract: **GS-08S-34121, Item 27B**
Manufacturer: **WILLSON PRODUCTS DIVISION**
ESB Inc.
P. O. Box 622
Reading, Pennsylvania 19603

6. **Respiratory Protection**
   a. **Mask, airline:** **(Recommended Quantity - 6) (Not authorized for submarines)**

Full faceplate style, FED SPEC GGG-M-125, Type 1, Class 2

NSN	**Cost**
9G 4240-00-275-3177	**$41.18**

   b. **3M 8710 Respirator:** **(Recommended Quantity - 200)**

NSN	**Cost**
4240-00-629-6199	**$126.50 (case of 100)**

635-C.6 PORTABLE ASBESTOS VACUUM CLEANERS: (Recommended Quantity - 2)

1. **Listed vacuums are dry vacuums only.**
2. **Basic Designs generally preclude misinstallation of absolute filters.**
   a. **Brand:** **NILFISK**
      Model: **GA 70**
      Weight: **15 lbs**
      Capacity: **2 gal.**
      dBA: **70**
      Cost: **$286 w/kit**
      NOTE: **Exhaust filter or disposable bag filter must be used and is included in kit.**

Accessories: (GA-70)

	Part No.	**Cost**	**Quantity Needed**
Extension rubber hose - 10'	106217	$ 54.84	1
Aluminum extension tube - 3'3"	112624	19.22	2
Paper bag filters (10/pack)	813742	20.50	5
Microfilter	613274	25.44	4
HEPA exhaust filter unit	115120	100.00	1
HEPA filter element	215141	69.89	1
		$289.89	

Manufacturer: NILFISK OF AMERICAN, INC.
Box 713
201 King Manor Drive
King of Prussia, Pennsylvania 19406

b. **Brand:** NILFISK*
Model: GA 71
Weight: 25 lbs
Capacity: 5 gal.
dBA: 70
Cost: $297 w/kit
NOTE: Same as GA-70

Accessories: (GA-71)

	Part No.	Cost	Quantity Needed
Rubber hose - 10'	112404	$ 75.90	1
Hose extension - 10'	113439	70.20	1
Straight steel wand	110272	14.68	2
Curved steel tube	109440	8.02	1
Curved aluminum wand	109670	17.51	1
Rubber cone	809562	4.48	1
Pipe nozzles with bristles 4"	113474	64.62	1
Pipe nozzles with bristles 8"	113475	82.00	1
Disposable filter bags (10/pk)	814550	42.15	5
Microfilter	613274	25.44	4
HEPA exhaust filter unit	115120	100.00	1
HEPA filter element	215141	69.89	1
Bag filter ring	314596	2.07	1
Plastic basket	814595	9.20	1
Basket for bag	714549	13.99	1
		$600.15	

Manufacturer: NILFISK OF AMERICAN, INC.
Box 713
201 King Manor Drive
King of Prussia, Pennsylvania 19406

c. **Brand:** PULLMAN/HOLT*
Model: JB75AV Asbestos Vacuum
Weight: 40 lbs
Capacity: 9.5 gal
dBA: 65
Cost: $499.98 w/kit
NOTE: Cost includes absolute filter

Accessories: (Pullman Holt)

	Part No.	Cost	Quantity Needed
Crushproof hose - 15'	3CC	$ 37.00	1
Straight extension tube	25-4	20.00	1
Fibre crevice tool	2529	7.50	1
Paper filter bags and disposable bags (pk of 3)	B000561	10.95	10
Secondary filter	29	15.00	3
Absolute filter	100	275.00	1
Fiberglass prefilter replacement	100A	12.00	3
Hose Connector	5	5.00	1
		$535.00	

Manufacturer:
PULLMAN/HOLT PRODUCTS
Division of Purex Corporation
10702 46th Street
Tampa, Florida 33617

*The GA-71 (5 gal.) and Pullman/Holt (9.5 gal.) are recommended vice the smaller GA-70 (2 gal.). Each ship should select identical units (2 of one type) to minimize maintenance/repair problems.

635-C.7 DISPOSABLE BAGS: (Recommended Quantity = 1 case of 150)

Red bags with white lettering noting:

CAUTION
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
BREATHING ASBESTOS DUST MAY
CAUSE SERIOUS BODILY HARM

Size	Manufactures Product Item No.	Cost/Case of 150
55 gal.	GAFWB #4048	$42.20

Manufacturer:
BLAKE, MOFFIT, AND TOWNE
P. O. Box 7816
San Francisco, California 94120

635-C.8 DROP CLOTH: (Recommended Quantity = 200 yards)*

Cloth, laminated, vinyl nylon, fire resistant, waterproof

Type II, Class II (9-11 oz./yd²)

Color	Size	NSN	Cost/yd
Green	54 inch width	9D 8305-00-351-8346	$1.39

*After use drop cloths must be treated as asbestos waste.

635-C.9 WARNING/CAUTION SIGNS

Initially these are to be made up locally. Size and format to be in accordance with OPNAVINST 6260.1A. Will be in standard stock. NSN will be included in AELs.

635-C.10 WATER SPRAYER: (Recommended Quantity - 1)

Used to wet asbestos prior to removal.

Size	Model	Cost
1 gallon	TIK Professional Sprayer No. 67132	$65.40

Manufacturer: H.D. HUDSON MANUFACTURING CO.
500 N. Michigan Avenue
Chicago, Illinois 60611

635-C.11 OTHER ACCESSORIES

a. Masking Tape (Recommended Quantity = 20 rolls)

Size	NSN	Cost
1 1/2"-2"	7510-00-266-6711	$0.48/roll

b. Line: (Recommended Quantity - 200')

Used to restrict access

Size	NSN	Cost
1/4" x 200'	9Z 4020-00-240-2164	$8.00

c. Stryker Cutter: (Recommended Quantity = 1)

NSN	Cost
6515-00-323-4510	$154.21

d. Vortex Cooling Assembly: (Recommended Quantity = 3)

3M Vortex Cooling Unit*
GSA Contract #00S-31030

		Cost	Cat. #
Assembly*		$90.94	W2862
Hose -	50'	35.96	W9435-50
	100'	62.79	W9435-100
Airline to hose Socket **		3.47	WS 1449
Air distribution tube		(Approx.) 20.00	W2919

*NOTE: The vortex unit cannot be supplied by the breathing air unit (AABA). The vortex assembly requires a separate LP air supply at 60-80 PSIG. This unit is recommended for high heat stress situations. It is recognized that two air hoses per man will complicate the work site. Testing to validate a hooded, one piece vortex equipped disposable coverall will commence in 1979.

**Adaptor for ships LP airline to cooling assembly hose.

TABLE 635-D1

TECHNICAL ASSISTANCE FOR FORCES AFLOAT			
Unit No.	**Location**	**Autovon**	**Commercial**
2	Norfolk, VA	690-7671	(804) 444-7671
5	San Diego, CA	958-1263	(714) 235-1261
6	Pearl Harbor, HI	430-0111 EXT 2173	(808) 474-2173
7	Naples, Italy	625-1000 EXT 468/469	

TABLE 635-D2

TECHNICAL ASSISTANCE FOR SHORE ACTIVITIES

NAVREGMEDCEN	INDUSTRIAL HYGIENE SERVICES AUTOVON	COMMERCIAL
Bethesda, MD	295-1202	(301) 295-1202
Bremerton, WA	439-2729	(206) 478-2729
Camp Lejeune, NC	454-5707	(919) 451-5707
Camp Pendleton, CA	993-3509	(714) 725-3509
Charleston, SC	794-6100	(803) 743-6100
Corpus Christi, TX	861-3465	(512) 939-3465
Jacksonville, FL	942-2841	(904) 772-2841
Long Beach, CA	360-8236	(213) 547-8236
New London, CT	241-4613	(203) 449-4613
Newport, RI		
NAVREGMEDCLINIC.		
Portsmouth, NH	684-2398	(207) 439-1000 (X398)
Oakland, CA	253-2458	(707) 646-2458
Pearl Harbor, HI	430-0111 EXT 2137	(808) 474-2137
Pensacola, FL	922-3639	(904) 452-3639
Philadelphia, PA	443-4751	(215) 755-4751
Portsmouth, VA	961-3280	(804) 393-3280
San Diego, CA	957-3506	(714) 225-3506

APPENDIX E. ASBESTOS CAUTION SIGNS AND LABELS

635-E.1 SIGN SPECIFICATIONS

635-E.2 Asbestos warning signs shall conform to the requirements of 20- by 14-inch vertical format. The signs shall display the following legend in the lower panel, with letter sizes and styles specified. Spacing between lines shall be at least equal to the height of the upper of any two lines. Specific protective clothing/respiratory equipment requirements may be added to the bottom of the sign.

LEGEND	NOTATION
Asbestos	1" Sans Serif, Gothic, or Block
Dust Hazard	3/4" Sans Serif, Gothic or Block
Avoid Breathing Dust	1/4" Gothic
Wear Assigned Protective Equipment	1/4" Gothic
Do Not Remain In Area Unless Your Work Requires It	1/4" Gothic
Breathing Asbestos Dust May Be Hazardous To Your Health	14 point Gothic

635-E.3 Fibrous Glass/Calcium Silicate caution signs shall display the following legend in letters of sufficient size and contrast so as to be readily visible and legible:

CAUTION

Fibrous Glass

or

Calcium Silicate

Operations In Progress

Avoid Breathing Dust

635-E.4 CAUTION LABELS

635-E.5 Caution labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers, except that no label is required where asbestos fibers have been modified by a bonding agent, coating, binder, or other material so that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in Appendix A will be released. Asbestos waste plastic bags with a pre-printed caution statement may be used in lieu of caution labels.

635-E.6 The asbestos caution labels shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

CAUTION

Contains Asbestos Fibers

Breathing Asbestos Dust May Cause

Serious Bodily Harm

EXHIBIT #2

LA-62B:lm
28 FEB 1979

Dear Mr. Leggett:

This is in response to the questions posed during the recent meeting between your staff and Rear Admiral John D. Chase, Assistant Deputy Chief of Naval Operations for Logistics, and Captain Richard Leslie of the Naval Sea Systems Command.

Hopefully the enclosed answers will provide you with the information you desire concerning the Navy's efforts with regard to asbestos-related problems.

Sincerely,

C. J. WAGES, JR.
Captain, U. S. Navy
Deputy Chief

The Honorable Robert L. Leggett
House of Representatives
Washington, D. C. 20515

Enclosure

Question #1: What increase in operating costs can be attributed to asbestos controls and procedures?

Answer: Cost increases have not been quantified. However, increases have taken place in the following areas:

a. Overhead - Due to training, medical surveillance and closer supervision requirements.

b. Direct Labor - Due to decreased productivity caused by changed work practices and personal and environmental protection measures.

c. Indirect - Total overhaul work package changes caused by isolation of asbestos rip-out spaces and exclusion of non-involved trades during the work and clean-up periods.

Question #2: What is the cost of the medical surveillance program (cost per man)?

Answer: The cost of the medical surveillance program, excluding hardware costs, is estimated at $30 - $50 per man per year.

Question #3: When did the Navy issue the first safety directive for asbestos?

Answer: Bureau of Medicine and Surgery instructions beginning on 7 November 1955 and periodically updated through 22 May 1969 set Navy military and civilian exposure limits to asbestos. Exposure limits were those of the American Conference of Governmental Industrial Hygienists. Since 1970, limits published under the Occupational Safety and Health Act have been required.

Question #4: When did the Navy start the asbestos substitution program?

Answer: NAVSHIPINST 5100.26 of 9 February 1971 required that suitable replacement materials for asbestos be used when practicable. The first material specifications to eliminate asbestos as an acceptable material for thermal insulation for machinery and piping were so amended on 9 January 1973. Since then, military specifications have been changed to eliminate the use of asbestos in all cases except those where suitable substitute materials have not been identified. Meanwhile, actions are continuing to identify acceptable substitutes for those applications still using asbestos containing materials.

Question #5: When did Navy first establish respiratory requirements for asbestos work?

Answer: In 1969, the Bureau of Medicine and Surgery established a program for control of asbestos exposure which included respiratory protection requirements. These requirements have been reinforced and updated periodically as necessary to be in compliance with OSHA requirements for respiratory protection against asbestos exposure.

Question #6: What are the current asbestos directives in force?

Answer: Current Navy directives pertinent to the control of asbestos include the following:

a. OPNAVINST 6260.1, "Control of asbestos exposure to naval personnel and environs."

b. NAVSEAINST 5100.2, "Asbestos Elimination/Substitution/Personnel Protection Program."

c. NSTM Chapter 635 (including Change 1), "Thermal Insulation."

Question #7: Provide copies of the latest at-sea asbestos concentration readings.

Answer: Surveys to obtain shipboard asbestos concentration readings were conducted on board the USS RICHMOND K. TURNER (CG-20) on 25 - 29 April 1977 and the USS ELMER MONTGOMERY (FF-1082) on 5 - 8 July 1977. The survey data results are attached as Tab A.

Question #8: What new ships are being constructed asbestos-free?

Answer: The following new ships are being constructed asbestos-free, i.e., the shipbuilding specifications comply with NAVSEAINST 5100.2 requirements for asbestos elimination in thermal insulation applications and in such other applications where suitable substitute materials have been designated:

a. DD-974 through -992
b. FFG-7 through -24
c. AS-39, -40 and -41
d. AD-41, -42 and -43
e. AO-177, -178 and -179
f. TATF-166, -167, -168 and -169
g. SSN-688 Class
h. CVN-70
i. PHM-2 through -6
j. TRIDENT
k. CGN-38 Class
l. LHA-3, -4 and -5
m. DDG-47

Question #9: How many asbestos claims have been paid? (Area and amount)?

Question #10: How many claims are in process (area and amount)?

Answer: There is no currently implemented information reporting system which would provide up-to-date data related to asbestos claims in process and/or paid. However, based on information developed by the naval shipyards as a result of inquiries from the Public Citizen's Health Research Group, the following data is provided in response to Questions #9 and #10:

Asbestos Claims

Naval Shipyard	Filed	Approved by OWCP
Charleston	39	*
Long Beach	43	2
Mare Island	93✓	23✓
Norfolk	90	*
Pearl Harbor	*	2
Philadelphia	138	*
Portsmouth	13	10
Puget Sound	*	*

*No data available at this time.

Question #11: How are asbestos claims processed?

Answer: Civilian employees of the United States who claim that they have suffered an on-the-job injury or occupational disease, from exposure to asbestos or from any other cause, can file claims for compensation under the provisions of the *Federal Employees' Compensation Act*, 5 U.S.C. §§ 8101 *et seq*.

The Department of Labor's Office of Workers' Compensation Programs (OWCP), prescribes the forms and procedures pertinent to the filing and processing of compensation claims. The general steps include:

a. The federal employee initiates his claim of occupational illness, such as asbestosis, by filing a Form CA-2, "Federal Employee's Notice of Occupational Disease and Claim for Compensation". This form includes one section for the employee to complete and another section for the employee's supervisor.

b. The CA-2 instructs the employee to provide a detailed medical report from each private physician who has provided treatment for the disease or illness.

c. The employing activity and supervisor complete the CA-2 by providing information on the claimant's employment status (e.g., rate of pay, health insurance coverage, work assignment, etc.). Additionally, the CA-2 requires the employer to assemble detailed information on the claimant's work, work environment exposures, copies of all available medical examination data, absence record, statement from co-workers about the claimant's apparent condition and cause, and comments on the accuracy of the employee's claim statement. Usually, the employer must file the CA-2 with OWCP within 10 working days after receipt from the claimant.

d. The completed CA-2 and all supportive information is sent to OWCP for evaluation and adjudication. OWCP may call for additional information from any pertinent source or may order additional medical examinations. Thus, the OWCP controls the claims process and acts as judge and jury in the award decision. The claimant may appeal an adverse decision, but the employer has no appeal rights.

Former members of the Armed Forces who claim that they have suffered injuries or occupational diseases while on active duty in the Armed Forces may file claims with the Veterans' Administration for "service-connected disabilities." The Veterans' Administration acts as the judge and jury in the award decision, just as the Office of Workers' Compensation Programs so acts with regard to claims of civilian employees.

A current member of the Armed Forces who is unable to perform his duties because of asbestos-related disease, or from any other cause, is entitled to disability retirement benefits. Of course, all members of the Armed Forces are entitled to medical treatment at military medical facilities regardless of the cause of their illnesses or injuries.

Employees of independent contractors doing work for the Navy (construction or overhaul of ships and submarines, etc.) must file claims with their own employers or the workmen's compensation insurers of their employers.

Question #12: What are the Pearl Harbor criteria for levels of risk?

Answer: The various trades were assigned the following risk categories:

Exposure Category	Code	Trades
HIGH	01	Pipe Coverers and Insulator (Appr. limited, instr. foreman, general foreman)
	02	Boiler Maker
INTERMEDIATE	03	Electrician - Shop #51 and #99
	04	Shipfitter
	05	Welder and Flame Cutter
	06	Rigger and/or Heavy Laborer - Shop #72
	07	Pipefitter
	08	Automotive Mechanic and Heavy Mobile Equipment Mechanic
	10	Marine Machinist
LOW	13	Refrigerator and Air Conditioner
	18	Coppersmith
	19	Crane and Motor Vehicle Operators Shop #2 Servicing: Oiler, Engineman, Ordnance Man, General Equipment Inspector, Power Plant and Boiler Tenders, Power Plant Electrician, Reactor Plant Foreman
	20	Loftsman, Sailmaker, Sewer, Upholsterer, Ship Maintenance Mechanic, Ship Inspectors: Mechanical, Piping, Systems, etc.
	21	General or Unclassified Helper, Laborer, Warehouseman, Stockman, Cement Finisher, Gardner, Inspector of Metals
MINIMAL OR BACKGROUND	09	Sheetmetal Mechanics
	11	Woodcraftsman, Carpenter and Joiner, Molder, Patternmaker and Sawsmith, Boatbuilder
	12	Electronics Mechanic, Radio Mechanic, Fire Control Mechanic, Cryto-electronics Mechanic, Shipboard Systems Electronics Mechanic
	14	Instrument Mechanic: Electrical, General, Mechanical, Optical
	15	Inside Machinist, Machinist, Maintenance Machinist

Exposure Category	Code	Trades
	16	Toolmaker, Toolmaker Mechanic
	17	Shipwright, Lineman Electrician, Wharfbuilder, Antenna Rigger, Diver
	55	Graded Jobs: Jobs beyond Foreman and Shop Planner, Office Jobs, Policeman
	99	Job Unknown

USS RICHMOND K. TURNER (CG-20)
25-29 April 1977

Location	Fibers/cc
Fireroom 02	
1. Lower level, forward port side of space	< .1
2. Upper level, port side of space	< .1
3. Lower level, centerline	< .1
4. Upper level, aft, portside	< .1
5. Upper level, left of center line	< .1
6. Upper level, forward, star board side	< .1
Engineroom 02	
7. Upper level, aft, starboard side of space	< .1
8. Forward, starboard side of space	< .1
Laundry	
9. Centerline, portside, frame 182	< .1
10. Starboard side (approx. frame 190)	< .1
Berthing Spaces	
11. (2-174-0-L), centerline, portside, frame 182	< .1
12. (2-105-01-L), centerline, starboard side, frame 105	< .1
13. CPO Living Space, portside, (approx. frame 68)	< .1
14. (2-174-0-L) starboard side, frame 170	< .1
15. (2-61-0-L)	< .1
16. (2-20-0-L) (approx. frame 25)	< .1
17. (3-36-0-L) (approx. frame 40)	< .1
18. (2-35-0-Q) (approx. frame 39)	< .1
19. (2-165-01-L) (approx. frame 185)	< .1
20. (1-136-5-L) centerline	< .1
21. (1-147-1-L) DCA's Stateroom	< .1
22. (1-152-0-L)	
23. (1-160-2-L)	
24. (1-147-2-L) Eng. Officers' Stateroom	
Engineroom 01	
25. Lower level, centerline	< .1
26. Upper level, forward	< .1
27. Forward, centerline	< .1
28. Upper level, portside, frame 104	< .1
29. First Class Mess, (1-92-0-L) starboard side	< .1
Fireroom 01	
30. Upper level, forward, star board side	< .1
31. Lower level, aft, starboard side	< .1
32. Lower level, forward, port side	< .1
33. Upper level, forward, star board side	< .1
34. Exit Hatch to Fireroom 01 (5-72-0-E)	
Fireroom 01 Ripout in progress	
35. 2 ft below site, under drop curtain	
36. 3 ft from site	
37. 3 ft from site at replacement air blower	
38. 9 ft from site	
39. 20 ft from site	
40. 12 ft below site	
41. 2 ft from site	
42. 20 ft from site	
43. 2 ft from site (at crossdraft)	
44. 12 ft from site	
45. 2 ft from site (at crossdraft)	
46. 30 ft from site	

* < less than

USS RICHMOND K. TURNER (CG-20)
25-29 April 1977

Location	Fibers/cc
Breathing Zones During Ripout Fireroom #1	
47. Personnel #1, Evolution #1	
48. Personnel #2, Evolution #1	
49. Personnel #3, Evolution #1	
50. Personnel #3, Evolution #2	
51. Personnel #1, Evolution #2	
52. Personnel #2, Evolution #2	
53. Personnel #4, Evolution #3	
54. Personnel #5, Evolution #3	
55. Personnel #6, Evolution #3	
56. Personnel #7, Evolution #4	
57. Personnel #8, Evolution #4	
Fireroom #1, Post Ripout	
58. 0 hours after ripout evolution	
59. 4 hours after ripout evolution	
Fireroom #1, 4 hours after ripout evolution	
60. 4 ft from site	
61. 8 ft from site	
62. 12 ft from site	
63. 16 ft from site	
64. 20 ft from site	
65. 20 ft from site	
Fireroom #1, 2 hours after ripout evolution	
66. 4 ft from site	
67. 8 ft from site	
68. 12 ft from site	
69. 16 ft from site	
70. 20 ft from site	
71. 20 ft from site	
Passageways	
72. (01-71-0-L) centerline, (approx. frame 73)	<.1
73. (1-72-2-L) centerline, forward, portside	<.1
74. (1-116-4-L) across from DC central	<.1
75. (1-29-0-L)	<.1
76. (1-161-2-L)	<.1
77. (1-69-0-L) approx. frame 69)	<.1
Passageways	
78. (1-92-1) starboard side	<.1
79. (1-116-1-L) starboard side	<.1
80. (01-74-2-L) port side	<.1
81. (1-72-2-L) port side	<.1
82. (01-92-1-L) starboard side	<.1
83. (02-92-1-L) starboard side	<.1
84. (01-140-2-L) port side	<.1
85. (1-72-1-L) at ET shop forward of Fireroom #1 hatch	
86. (1-85-1-L) at hatch to Fireroom #1	
87. (1-119-2-L) above hatch to Fireroom #2	
88. (1-116-4-L) at DC central on Casualty Terminal	
Miscellaneous Spaces	
89. DC Central on Top of Security Alarm Switchboard	<.1
90. DC Central office	<.1
91. Wardroom, centerline, frame 107	<.1
92. Wardroom, centerline, frame 107	<.1
93. Wardroom Galley, starboard side	<.1
94. First Class Mess (1-92-0-L) starboard side	<.1
95. Crews Mess, starboard side (approx. frame 107)	<.1
96. Crews Mess, centerline, portside (approx. frame 107) at ladderway to the Wardroom	<.1
97. Rudder bearing room, aft	<.1
98. AC Filter clean room	<.1
99. Emergency Generator room #1 (approx. frame 28)	<.1
100. Motor Generator room #1, (approx. frame 69)	<.1
101. CPO Mess, forward, starboard side	<.1

USS ELMER MONTGOMERY (FF-1082)
5-8 July 1977

Location	Fibers/cc
Engineroom - Upper level	
(c) On Supply Fan-2-101-2	<.1
(d) Stbd side at #1 Distillation Unit	
(e) Port side on Work bench	
Auxillary Machine Room #1 - Upper level	
(a) Top of AC Generator B	<.1
(b) Near L.O. Tank FR 73	<.1
(c) Personal Samples of Individuals Ripping out on Generator 2	
(1)	
(2)	
(3)	
(4)	
(5)	
(6)	
(d) 5 feet from Generator #2 on Speaker Control Box, Aft Bulkhead	
(e) 10 feet from Generator #2 on Turbo Generator forward of Bulkhead	
(f) 15 feet from Generator #2 to port on top of duplex strainer	
(g) 25 feet from Generator #2 on workbench near forward ladder	
(h) 30 feet from Generator #2 on port bulkhead at frame 73	
(i) Stbd side of Generator #2	
(j) Stbd side on 1A Duplex lube oil strainer	
(k) Port side on 4 stage compressor	
(l) Stbd side	
(m) Port side	

Location	Fibers/cc
Auxillary Machine Room #1 - Lower level	
(a) Port of Centerline under Generator #2	
(b) Port Bulkhead at frame #72	
(c) Top of FIN Stabilizer Unit #2	<.1
(d) Top of Bilge Suction Eductor (Contaminated Sample(cut during [illegible] analysis)	.167
(e) Top of F.O. transfer Pump	<.1
(f) Stbd side on Battery Rack	.9 ✓
(g) Port side on Fin Stabilizer #2	.7 ✓
(h) Starboard side	
(i) Port side	
Auxillary Machine Room #2	
(a) Personnel Samples	
(1)	
(2)	
(3)	
(4)	
(b) Top of Fwd end of Ship's Service Diesel Generator engine # 1-A	
(c) Same as Above	
(d) Aft port corner of space on top of "D-S through Box"	
(e) Same as Above	
(f) On top of "bypass cooler"	
(g) Port Bulkhead at frame 73	
(h) Top of Duplex strainer	
Officer State Room 01-85-2-L	<.1

USS ELMER MONTGOMERY (FF-1082)
5-8 July 1977

Location	Fibers/cc
Fireroom - Personnel Samplers	
(a) Lincoln-60721-056 cast cutter	
(b) Dewees-60161-056 cast cutter	
Fireroom - Upper level	
(a) Near LP Air Receiver	<.1
(b) Near Stair-top of Power Panel	<.1
(c) Port Bulkhead near base of ladder	
(d) Stbd Bulkhead on Catwalk under "Aux Exhaust Unload to Atmospheric Valve	
(e) Between Boilers	
(f) Aft from Stair near Aux Unload	<.1
Engineroom - Lower level	
(a) Top of Manual for Servo Pump	<.1
(b) On Fire Pump - Area Stairs	<.1
(c) Stbd side - Bottom of ladder	
(d) Port side main lube oil service pump	
Engineroom - Middle level	
(a) Top of motor control panel	<.1
(b) General Area	<.1
(c) On wall by auxillary exhaust steam system	<.1
Engineroom - Upper level	
(a) Aft of door on control panel of control room	<.1
(b) By Stairs - on walk in front of control room	<.1
Fireroom - Lower level	
(a) Top of transfer pump	<.1
(b) Between #1 and #2 Booster pumps	<.1
(c) Top of TK Pump #1B	<.1
(d) Top of Pump #1B	<.1
(e) Stbd side aft on Turbo compressor	
(f) Between Boilers	
(g) On Fuel Oil Service Pump	
(h) Ladder	
(i) Port turbo compressor	
(j) Port side at 4-95-2	
Fireroom - Middle level	
(a) Top of Panel #1	<.1
(b) Main Feed Pump #10	<.1
(c) Bulkhead 3-79-2 aft	<.1
(d) Bulkhead 3-94-2 near riser terminal	<.1
(e) Control Room 3-85-2-E	<.1
(f) Stbd Bulkhead under access cut, forward of frame 87	
(g) Stbd on top of "Fwd Diff press control panel #1"	
(h) Control Room, on "Main Feed system salinity ind."	
(i) Port side aft, near large workbench on small workbench	
(j) Fdw Diff. pressure control panel #1	
(k) Outside control station	
(l) Port side bottom of ladder	
(n) Stbd side by access hatch	

USS ELMER MONTGOMERY (FF-1082)
5-8 July 1977

Location	Fibers/cc
Officer Ward Room 107-0-L	<.1
Crew's Mess 2107-0-L	<.1
(a) Port side - Top of bulkhead	<.1
Crew's Lounge 2-41-0-L	<.1
Laundry Room 2-140-2	
(a) Stbd bulkhead at frame 141	
(b) Fwd bulkhead on top cabinet above sewing machine	
(c) Near Soap dryer	<.1
(d) Inside Store room	<.1
Passageway - 2-79-1 Outside Designated Ripout Area	
CPO Berthing	
(a) Stbd side	
(b) Port side	
Crew's Berthing 3-121-0-L	
(a) Port side	<.1
(b) Stbd side	<.1
Crew's Berting 3-65-0-L	
(a) Near Stairs on locker	<.1
(b) On locker aft of stairs	<.1
Engineering Store Room	
(a) Storage for asbestos	<.1
(b) Storage for asbestos	<.1
Force Blower Room §1	

Location	Fibers/cc
Heads	
(a) 2-47-0-L	
(b) 2-128-2-L	
(c) 2-132-2-L	
Quarter deck	<.1
Ship's Bow	
(a) Front of Gun Mount	<.1
On Dock	
(a) Near Exhaust of Asbestos Dust Collection System	
(b) In change room of asbestos workers shower trailer	

EXHIBIT # 5

THE AMERICAN MARINE ENGINEER JULY 1979

As Marad drags its feet on study:

Follow-up Asbestos Probe finds high pleural abnormality rate among D1-PCD members

A follow-up report on dangers of asbestos exposure, compiled by a team of pulmonary specialists at New Orlean's Tulane University School of Medicine, has revealed that a 'quite high' rate of pleural abnormality was found in the examination of 6,671 x-rays of D1-PCD, MEBA members drawn from the chest files of the four MEBA diagnostic centers in San Francisco, New York, New Orleans and Baltimore.

The report, which has been posted on D1-PCD bulletin boards at all ports, was a follow-up to the preliminary report compiled by the Tulane University team in early 1978 which was funded by MEBA in the spring of 1976 following the emergence of a pattern of cases of exposure to asbestos among engineers who had undergone checkups at the New Orleans diagnostic center.

In his follow-up report sent June 1 to Robert Leef, who directs the MEBA diagnostic centers, Dr. Robert N. Jones, of Tulane's Department of Medicine, Pulmo-

CONTINUED ON PAGE TEN

High pleural abnormality rate among D1-PCD members revealed in latest findings of follow-up Asbestos report

CONTINUED FROM PAGE ONE

nary Diseases Section, said that from the reading of these latest x-rays a 'quite high' 11.9 percent prevalence rate of pleural abnormality had been found in the 6,671 chest films examined.

In a subsequent verbal report to the Trustees of the MEBA Plans, Dr. Jones said that even though the findings brought to light the 11.9 percent prevalence rate, it must be born in mind that it takes up to fifteen years after exposure for evidence to show up on x-rays.

Consequently, Dr. Jones underlined, everyone who has worked as a marine engineer should presume that he may have been exposed to the dangers of asbestos.

It is, therefore, of particular importance, he added, that marine engineers whose x-rays are currently normal, but who are smokers, should know of the increased risk of lung cancer in smokers who have been exposed to asbestos.

To such persons, the Tulane University specialist said, the advice is emphatically: No Smoking!.

Because of the seriousness of the latest findings, D1-PCD, MEBA President Jesse M. Calhoon wrote to Acting Assistant Secretary for Maritime Affairs Samuel B. Nemirow July 6 in an attempt to considerably shorten the two-year timeframe of a Maritime Administration study on the hazards of asbestos exposure (*see box*).

Calhoon met with Nemirow the following day to press for an urgent short-term study, but was unable to obtain any commitment from the Maritime Administration in that sense.

Citing Section 2(1) of the D1-PCD, MEBA Dry Cargo and Tanker Agreements which says that "no licensed engineer shall be required to work under conditions which may endanger his health or safety . . ." Calhoon told *The American Marine Engineer:* "If I were a Chief Engineer I would heave all asbestos material over the side."

In his report to Mr. Leef, carried here in its entirety for membership guidance, Dr. Jones said:

We have just finished tabulating the results of reading the x-rays of 6,671 members of the Marine Engineers' Beneficial Association. These were the latest chest films of each member examined at one of four MEBA diagnostic centers in San Francisco, New York, New Orleans, or Baltimore.

The investigators on this project are Dr. Hans Weill, Director of the Tulane Occupational and Environmental Lung Disease Center; the late Dr. Morton Ziskind, head of the Pulmonary Disease Section at Tulane University; Dr. Manuel Rodriguez, a postgraduate Fellow in Pulmonary Diseases at Tulane University; and I.

The project involved independent classification of the chest x-ray films by two readers, using the ILO U/C Classification of Radiographs of Pneumoconioses (1971). Dr. Ziskind and I each read all of the films from San Francisco, New York and New Orleans. Dr. Ziskind read about 20 of the films from Baltimore before his death in March, 1979; Dr. Rodriguez completed the reading of films from Baltimore.

For all four cities, 6,671 films were examined. If either reader decided that a film was unreadable, it was eliminated from further analysis. This happened with 295 of the films leaving 6,376 films for analysis. These were divided among the several cities as follows: San Francisco, 2,390 films; New York, 1,310 films; New Orleans, 1,079 films; and Baltimore, 1,597 films.

Although three readers were involved in completion of this project, the design was that of a two-reader project, so I have labelled the readers Reader A (myself) and Reader B (Dr. Ziskind for the San Francisco, New York and New Orleans films, and Dr. Rodriguez for the Baltimore films).

Based on our preliminary assessment of the films from New Orleans, which showed a low prevalence of lung fibrosis, we decided to assess the asbestos exposure of this working group by estimation of the prevalence rates of various pleural abnormalities. These abnormalities are pleural thickening, pleural plaques, and pleural calcification.

The readers agreed, before reading even the New Orleans films, to exclude from our classifications those pleural abnormalities that appeared to be due to other specific causes such as rib fractures, chest trauma, operations, or tuberculosis.

With these ground rules for classifying the films, pleural thickening has some specificity for asbestos effects; and the other abnormalities, pleural plaques and calcification, have quite high specificity for asbestos effects. A person was counted as having a pleural abnormality if his film showed one or more of these radiographic appearances.

The tabulations of the independent readings showed that Reader A classified 19.8% of all the films as showing pleural abnormality, and Reader B classified 16.6% of the films as showing pleural abnormality. 11.9% of films were thought by both readers to show pleural abnormality, and 75.5% of films were thought by both readers to be free of such abnormality. The 11.9%, since it is base upon a requirement unanimous agreement, resents an irreducib mum for this two-reader trial.

In other words, if a third reader were employed to categorize the same films, the estimate of pleural abnormality could only rise because the three-reader trial would employ a criterion of majority agreement, and that is already obtained for 11.9%.

This 11.9% prevalence rate of pleural abnormality is quite high, even in relation to populations known to have substantial asbestos exposure. In a study by Rossiter and co-workers (Archives of Environmental Health, Vol. 24, pp. 388-400, 1972), of several thousand asbestos miners and millers in Quebec, the overall rate of "any pleural change" was 10%.

In an asbestos factory population described in the same study, the overall rate for any pleural change was 4.8%. Another study published in 1972 was that by Harries and co-investigators from the United Kingdom (British Journal of Industrial Medicine, Vol. 29, pp. 274-279) of 2442 men drawn at random from the British naval shipyard workers. The overall prevalence of pleural abnormalities in that sample was 3%.

We believe these results indicate that an unusual proportion of marine engineers show effects of inhaled asbestos. The pleural abnormalities in question, particularly pleural plaques and calcification, usually take 15 or more years to develop.

The logical inference is that excessive numbers of marine engineers were exposed to significant concentrations of asbestos dust in the past. These data do not allow any estimate of the risk associated with current work as a marine engineer.

It is also true that most of these pleural abnormalities, particularly plaques and calcifications, are benign; that is, they neither interfere with breathing, nor tend themselves to become cancerous. They are, however, markers of asbestos exposure, and that exposure is associated with an increased risk of fatal asbestos-related diseases, including malignant tumors.

This is particularly true for smokers, so the marine engineers, even those whose x-rays are now normal, should be warned of the increased risk from lung cancer in smokers who have been exposed to asbestos.

The major implications of our findings are the needs to document how asbestos exposures occur in the course of working as a marine engineer, and how these exposures may be prevented.

It seems probable that exposures are intermittent and are associated with afloat repairs and maintenance work involving the stripping of asbestos insulating materials from boilers, steam lines, valves, and other parts of the propulsion plant, or insulated ducts or other surfaces.

EXHIBIT #6

THE MARINE FIREMAN May 19, 1979

Asbestos Risk to MFOW Members

Many of our members worked around asbestos in shipyards and while aboard merchant and military vessels during and since World War II. At the height of the war years, 1940 to 1944, an estimated 4.5 million persons worked in shipyards in the United States. These workers, as well as seamen, were exposed to asbestos dust and may not be aware of asbestos-related diseases they have contracted as a result.

Many seamen may have been heavily exposed in the past and may just now be facing serious health problems, since asbestos-related diseases usually appear 10-20 years after exposure. Marine Firemen Union members exposed in the past to air-borne asbestos dust are at increased risk in developing asbestosis (a disabling lung disorder that can cause breathing difficulty as well as decreasing the air in one's lungs from getting into the blood stream); lung cancer; mesothelioma (cancer of the lining of the chest or stomach); and, less commonly, cancers of the throat and digestive system (esophagus, stomach, colon and rectum).

Asbestos fibers ~~become air borne during various industrial~~ processes, are inhaled and subsequently may be swallowed. Primary sources of exposure to asbestos dust have been in the installation and removal of asbestos materials during repair and refitting work. Asbestos has been included in insulation materials for pipe coverings (lagging), engines, hulls, decks, coverings of ventilation and water pipes, coatings for cables and electric wires, as well as use in caulking and filler products. It is also prevalent in various construction materials and used as a reinforcing material, as well as being used in plaster-board insulation, roofing, flooring, siding, and ceiling plaster.

All members should seek prompt and immediate medical check-ups to determine if they have developed any asbestos-related diseases. Cigarette smoking significantly increases the risk of developing asbestos-related disease. All members are urged to stop smoking. All members, active and pensioners, should contact the Seafarer's Medical Center, 40 Lansing Street, San Francisco, California, for evaluation of x-rays taken on annual physicals and for current x-rays in order to up-date your current medical evaluation.

Arrangements are currently being discussed with the Public Health Service Hospital in San Francisco for an asbestos screening clinic at said facility. Further, there is a toll free number in California for telephone sources of information from area codes 213, 714 and 805, the number is: 1-800-252-9066; for the remainder of California, the number is: (213) 226-2374. There is a concern by the Marine Firemen's Union that an unusually high number of our members have been dangerously exposed to asbestos. Please report any findings of abnormality or illness to the union so that we can keep track of this subject and advise members of their rights and remedies.

EXHIBIT # 7

Asbestos warning:

This seaman advises checkups if you were exposed to asbestos aboard ship

More than a year and a half ago, the government's top health official warned that 8 million to 11 million Americans were facing serious, in some cases fatal, health risks from exposure to asbestos.

Asbestos, warned then Secretary Joseph Califano of the Department of Health, Education, and Welfare, can cause various types of cancer and respiratory diseases. Some of the illnesses might not show up for 30 or 40 years after exposure, he said.

Califano said untold numbers already had died as a result of having inhaled the substance, often as World War II shipyard workers. But many others could be saved, he said, if they simply were made aware of the danger and sought help.

A year and a half later, how many have been made aware? No one can know for sure, but HEW says more people know of the dangers than ever before.

Shortly after Califano issued his warning, a Gallup poll showed that 50 percent of all Americans knew asbestos exposure had an adverse effect on health. Four months later, half-way through a public information campaign sponsored by HEW, the recognition factor was up to 62 percent. And a third poll, early last year, showed the recognition factor up to 68 percent.

Paul van Nevel, associate director of communications at the National Cancer Institute and a member of the Asbestos Work Group, said the government is "delighted" with the increased awareness.

Van Nevel credits the new understanding to a variety of government initiatives, including an HEW-funded $2 million television public service advertising campaign and the mailing of 40 million warning notices to Social Security recipients—including persons who, because of their age, may have faced a higher-than-average chance of exposure in a wartime shipyard.

The government's efforts also have received grudging approval from some in organized labor who had fought for, but failed to win, a system by which the government would try to individually trace every worker ever exposed to asbestos.

"The overall (notification) program was not unsuccessful," said one labor job health expert. "I could be very critical, but I won't be. (The government) hasn't gone far enough, but what they've done has been good."

The process is continuing. The Occupational Safety and Health Administration (OSHA) is working on a program to increase asbestos awareness among current workers and their employers, and future workers as well. Educational materials are being prepared for use in vocational technical schools.

Despite the new public awareness and the various initiatives to get the word out, however, there is concern that not enough workers are heeding the warning. Only 20,000 telephone calls have come in to the asbestos "hotline" since Califano's announcement, according to van Nevel, and only 5,000 inquiries followed the Social Security mailing of 40 million notices. The "hotline" — a free call — is 800-638-6004.—PAI

[illegible]

Mr. **Biaggi.** At this point, I ask unanimous consent to introduce into the record a communication from the Comptroller General of the United States, to Hon. Glenn A. Anderson.

Without objection, it is so ordered.

[The following was received for the record:]

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-163375

OCTOBER 18, 1979

The Honorable Glenn A. Anderson
The Honorable Jerry M. Patterson
House of Representatives

Subject: Navy's Efforts to Protect Workers From Asbestos Exposure (HRD-80-2)

Pursuant to your request and later discussions with your offices, we have reviewed the Navy's efforts to protect workers from asbestos exposure at the Long Beach and Norfolk Naval Shipyards. We have also obtained information on the (1) use of asbestos in Navy ships, (2) cost of removing asbestos from Navy ships, and (3) compensation programs for asbestos-related disabilities.

According to the Navy, although all ships contain some asbestos in such components as clutches and electric cables, most ships delivered in the last several years or now under construction have little or no asbestos as thermal insulation, which was the Navy's major use of asbestos aboard ships. Navy officials told us that they do not plan a one-time asbestos removal program because the benefits of such a program do not justify the estimated $2 billion cost.

Both shipyards had comprehensive asbestos control programs that should provide adequate worker protection if properly implemented. However, the Navy needs to do more to ensure proper implementation. These matters and information on worker compensation programs are discussed below.

NAVY'S POLICY ON USE OF ASBESTOS

The Navy's policy to eliminate the use of asbestos and materials containing asbestos, where suitable alternate materials have been designated, was issued in October 1975 after specifications had been revised to eliminate asbestos as an acceptable material for thermal insulation.

The Navy advised us that, although product specifications for thermal insulation had been changed in 1973 to specify the use of asbestos-free materials, asbestos materials had already been purchased and in some cases installed in ships under construction. Therefore, some ships were delivered with asbestos insulation as late as May 1978.

The Navy's October 1975 policy was to remove and replace with nonasbestos materials only insulation that was damaged or had to be removed to accomplish necessary repairs. In January 1979 the Navy told us that this policy had been modified to include selectively replacing asbestos insulation in high-maintenance areas where repairs would be expected during a ship's next operating cycle. The Navy estimated that, during the next 5 years, implementation of this policy should result in the removal and replacement of all shipboard thermal asbestos insulation except the 30 to 50 percent which normally remains untouched, except for minor maintenance, during the life of a ship. In addition, there are a few shipboard applications for which no acceptable substitute asbestos-free materials have been identified.

The Navy does not plan a one-time asbestos removal and replacement program because:

--This would require substantial funding--about $2 billion for all ships.

--Thirty to fifty percent of the asbestos insulation will never be touched during the useful life of a ship except for painting or making minor repairs to the lagging and cover material.

--Tests have shown that operating ships with asbestos insulation do not have excessive levels of airborne asbestos.

--Asbestos exposure is minimized through stringent work standards.

--The National Institute for Occupational Safety and Health (NIOSH) has recommended controls similar to those for asbestos for fibrous glass, a primary replacement material for asbestos. This action indicates that fibrous glass may pose a health hazard similar to that of asbestos.

The asbestos content of the Navy's ships and the Navy's views on a one-time asbestos removal program are discussed in more detail in enclosures I and II.

EFFORTS TO PROTECT SHIPYARD WORKERS

We reviewed the measures taken to protect workers at the Long Beach and Norfolk shipyards. We were assisted at Long Beach by an industrial hygienist from the California Occupational Safety and Health Consultation Service and at Norfolk by an industrial hygienist from the Occupational Safety and Health Administration (OSHA). The industrial hygienists made inspections and took air samples to determine whether there were adequate safeguards to protect shipyard workers. (For both locations some asbestos removal work was done at places other than the shipyard either by shipyard personnel or by private contractors. We did not visit those places.)

Navy instruction OPNAVINST 6260.1, issued in April 1974 and revised in August 1978, provides for establishing and maintaining an asbestos control program. This instruction is supplemented by instructions issued by both the Long Beach (issued October 1977) and the Norfolk (issued March 1978) shipyards.

Both shipyards had established comprehensive programs to protect their workers. The programs require (1) the use of protective clothing and equipment by asbestos workers, (2) monitoring of airborne asbestos fibers in areas where asbestos work is being done, (3) procedures for cleaning up and disposing of asbestos waste, (4) formal training programs, and (5) medical surveillance for asbestos workers.

Workers doing asbestos removal operations (rip-outs) are to be provided work clothes, disposable coveralls, hoods, plastic shoe covers and gloves, and full-face air-line respirators. Before the rip-out is started, the ship's compartment must be isolated, the ship's ventilation system blocked off, local ventilation provided, warning signs posted, and guards posted at the entryway. After the rip-out is done and the area cleaned up, a shipyard asbestos monitor or an industrial hygienist must test the air for asbestos fibers to determine if the area is safe for workers to enter without required protective equipment.

When possible, rip-outs are to be done on the second and third shifts to minimize possible exposures of other workers. Minor rip-outs and repairs may be done anytime. Both shipyards had designated asbestos program coordinators responsible to the shipyard commanders for establishing, monitoring, and enforcing an asbestos control program.

The shipyards' written programs conform with OSHA's requirements for protecting workers who may be exposed to excessive levels of asbestos. Both industrial hygienists who assisted us said that, if properly implemented, the programs should provide adequate protection against the health hazards that could result from asbestos exposures. However, greater efforts are needed to assure that safe work practices are followed. At the time of our review, the shipyards did not have enough staff to adequately monitor and enforce their programs.

Some workers and supervisors reportedly did not always take protective measures because such precautions slow down the work. Also, personal protective clothing and equipment were sometimes not used or were used improperly because they are uncomfortable and cumbersome. For example, the protective clothing increases body heat, and some workers will open the clothing to cool off. In addition, workers have difficulty moving around obstacles or in confined spaces wearing full-face respirators and dragging air supply lines.

Examples of the program deficiencies we noted at each shipyard are discussed below.

Long Beach Naval Shipyard

At the time of our visit, although some asbestos work was being done, no major rip-out was underway. Dust samples taken by the industrial hygienist aboard two ships contained asbestos dust, indicating that required cleanup had not been done properly. He found several pipe ends with exposed asbestos in the fire room of one ship. He also found asbestos fibers on some pipes that had been stripped of asbestos insulation.

Although shipyard workers are provided adequate protective clothing and equipment, several workers told us that some workers do not use it. We were told also that some members of the ships' crews use compressed air to clean asbestos work areas, which blows asbestos fibers and dust into the air.

The shipyard has had a full- or part-time asbestos inspector since November 1977. Since then the inspectors have kept a log of the asbestos control program violations they noted. Logbook entries showed that program violations occurred frequently and that some exposure of unprotected workers may have resulted.

Norfolk Naval Shipyard

The industrial hygienist said that personal protective equipment and other protective measures were properly used during the rip-out he observed, with one exception. Three workers wearing respirators had full beards, which could result in improperly fitting respirators. However, some workers told him that proper protective measures were not always taken.

Although the shipyard had an asbestos program coordinator, no one person was aware of all asbestos activities going on. The coordinator was also the superintendent of the pipe shop; he had other duties and responsibilities, including the removal of asbestos insulation. He did not have enough time to effectively oversee all the asbestos jobs. In May 1979, we were told that the asbestos program coordinator position had been made a full-time job.

Because of insufficient industrial hygiene staff, some shipyard workers were trained as asbestos monitors or counters to take air samples in work areas and to count the asbestos fibers in the samples taken. Our consultant said that the asbestos monitors were not adequately supervised to ensure that enough samples were taken in the right place at the right time.

Industrial hygienists' conclusions

The industrial hygienist who assisted us at Long Beach saw a need for

--better control and supervision of work practices and better use of personal protective clothing,

--better planning and coordination of asbestos rip-out and repair operations,

--more emphasis on engineering controls to reduce airborne concentrations of asbestos,

--additional industrial hygiene staff to monitor and evaluate the asbestos control program, and

--additional staff in the safety group to monitor rip-out operations aboard ships to make sure shipyard instructions are followed.

The industrial hygienist who assisted us at Norfolk said that more technically qualified personnel were needed to monitor asbestos removal and repair operations and to enforce compliance with shipyard regulations. Specifically, he said the shipyard needed

--additional industrial hygiene staff,

--a respirator fit test program,

--a qualified individual responsible for the asbestos control program, and

--more worker education and training on asbestos hazards.

Navy studies of shipyards' efforts to protect workers from asbestos

In 1977 the Navy began to review all naval shipyards to ascertain compliance with asbestos control procedures and to determine whether further headquarters or local directions were needed. The reviews, which were completed at Norfolk in February 1977 and at Long Beach in March 1978, were made by special teams that included occupational safety and health personnel. The teams found numerous deficiencies--some serious--and recommended that each shipyard establish internal procedures to provide for quarterly asbestos self-evaluations through fiscal year 1979.

As of June 1, 1979, Long Beach had reported that about 90 percent of the deficiencies noted during the Navy's review had been corrected. As of February 1979, Norfolk had reported that about 95 percent of the initially noted deficiencies had been corrected.

DISABILITY COMPENSATION PROGRAMS

Several disability compensation programs are available for present and former naval employees who believe an asbestos-related health problem resulted from their Navy employment. These programs were designed to compensate not only for asbestos-related disabilities, but for various types of disabling injuries and illnesses. Which compensation program applies generally depends on the employment status of the individual affected.

Present and former Federal civilian employees are covered by the Federal Employees' Compensation Program, which provides benefits for injury, occupational disease, or death resulting from or proximately caused by the performance of duties as a Federal employee. Federal civilian employees may also be covered under the Civil Service Retirement System. However, they cannot receive benefits under both programs at the same time. The Civil Service program covers only total disability and compensates for the inability to perform useful and efficient service in the last position occupied. The disability need not be work related.

Active-duty military personnel who have an asbestos-related illness are covered by the Military Retirement System. The disability need not be work related if the claimant has 20 years of service. Otherwise eligibility for benefits depends on whether the percentage of disability is at least 30 percent and whether the claimant has at least 8 years of service or, if less, whether there is a causal relationship between the disability and duties performed. Former military personnel who believe they have an asbestos-related problem resulting from exposure while on active duty may be covered by the Veterans Disability Benefits Program. This program provides benefits for total and partial service-connected disabilities. The program also has provisions for granting pensions to qualifying veterans with a permanent, total, non-service-connected disability.

Contractor employees who have done asbestos work for the Federal Government may be covered by the Longshoremen's and Harbor Workers' Compensation Act, social security disability benefits, or a State workmen's compensation program. Temporary or part-time Federal employees who are usually not covered by the Civil Service System are covered by social security. Eligibility requirements and benefits paid under the Longshoremen's and Harbor Workers' Compensation Act are similar to those of the Federal Employees' Compensation Act. To obtain social security benefits, the worker must have worked long enough to acquire insured status and must be unable to engage in any substantial gainful activity. The impairment need not be job related. Eligibility requirements and the benefits paid by workmen's compensation programs vary depending on State laws.

CONCLUSIONS

Although recently constructed Navy ships have little or no asbestos thermal insulation, other Navy ships contain large quantities of asbestos. The Navy believes a special program to substitute other insulating materials for asbestos is not warranted because it would be very costly and provide limited benefits. Thus, shipyard employees will continue to work with or near asbestos for many years as ships are repaired and overhauled.

The Navy has made considerable efforts to protect workers from asbestos. But safe work practices are not always followed. Better supervision, training, and workplace monitoring and increased use of engineering controls when feasible can help further reduce exposure. However, as long as ships contain asbestos insulation, some exposures are probably inevitable.

RECOMMENDATIONS

We recommend that the Secretary of Defense

--ensure that naval shipyard asbestos control and personnel protection programs are effectively monitored and enforced and

--provide sufficient resources to effectively implement these programs.

AGENCY COMMENTS AND OUR EVALUATION

The Navy Department concurred in our recommendations and advised us that it was continuing to make improvements through organizational changes, staffing increases, and internal audits.

The Navy stated that the Congress had not provided funds to cover the fiscal year 1979 cost of its selective asbestos rip-out program. We were later advised that this denial would not hinder the Navy's plans to complete this program over a 5-year period, provided that future funding requests are approved by the Congress.

According to the Navy, our report implied that an exposure to asbestos carries with it the certainty of disease. It suggested the following clarifying language.

> "Any reference in this report to an 'exposure' to asbestos is to be construed as meaning coming into contact with an environment containing airborne asbestos fibers in concentrations greater than those permitted by OSHA standards. Further no inference as to the result of such exposure, i.e., disease, is intended."

We do not intend to imply that every person exposed to asbestos fibers in excess of OSHA's standard will contract an asbestos-related disease. We believe, however, that the Navy's suggested language goes too far in the other direction. In December 1976, NIOSH stated in its revised recommended asbestos standard that, although there are data showing that the risk of cancer is lower at lower exposure levels, excessive cancer risks have been demonstrated at all levels of asbestos exposure studied. NIOSH recommended that the asbestos standard be set at the lowest level detectable by available analytical techniques, which is about one-twentieth of the present standard. Thus, while exposure to asbestos presents no certainty of an asbestos-related disease, such a disease is a possibility even at exposure levels substantially below OSHA's standard.

The Navy said it is developing a protective suit which allows for body cooling. The suit, which is undergoing an industrial hygiene evaluation, should increase worker comfort and productivity. The Navy plans to seek OSHA and NIOSH approval of the suit on a priority basis. The Navy added that its shipyards were reviewing controls on facial hair and developing stronger language to prohibit any hair that interferes with a good respirator face seal.

We recognize that the Navy has made and continues to make considerable efforts to improve its asbestos worker protection program. Its current efforts to improve program surveillance, develop more comfortable personal protective clothing, and improve respirator fit should help minimize the possibility for exposure to excessive levels of asbestos fibers.

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As arranged with your offices, we are sending copies of this report to the Senate Committee on Labor and Human Resources; the Subcommittee on Labor Standards, House Committee on Education and Labor; and Congressman George Miller. We are also sending copies to the Director, Office of Management and Budget; the Secretary of Defense; and the Secretary of the Navy. Copies will also be made available to other interested parties who request them.

R.F.Keller

ACTING Comptroller General
of the United States

Enclosures - 3

DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, D.C. 20350

IN REPLY REFER TO
Ser 4542/318054
5 Jan 1979

Mr. Robert F. Hughes
Assistant Director
U. S. General Accounting Office
Human Resources Division
Washington, D. C. 20548

Dear Mr. Hughes,

This is in response to your letter of October 5th in which you requested information on the extent to which asbestos is being used in the Navy's shipbuilding and ship repairing operations. This response reflects our understanding of the scope/detail of your request as amplified by Mr. Joseph Daigle of your staff during a meeting in late October.

In response to questions 1, 2 and 4, attachment #1 provides a listing of U. S. Navy ships (class, name and hull number) which were delivered since 1973 or are under construction and also provides information regarding the status of thermal insulation. Each ship has several types of asbestos containing materials installed; however, thermal insulation for machinery, equipment and piping systems has been the major application of asbestos.

Even though the use of asbestos as thermal insulation has been eliminated, there remain a few shipboard applications where technically acceptable substitute asbestos-free materials have not yet been identified. Therefore, all ships presently in service contain some quantity of asbestos.

Asbestos fibers are incorporated in the plastic-like body of certain electrical resistors found in home, TV and stereo equipment and in Navy electronic equipment. Asbestos is used in home and office floor tiling and on Navy ship decks. Asbestos is used on electric cabling found in many commercial ovens, home hot water heaters and in Navy galley ranges. Piping system gaskets and packing used throughout thousands of American industries and homes and in Navy shipboard piping systems contain asbestos. Asbestos is used in automotive brakes and clutches and in Navy ship equipment brakes and clutches. The list is nearly endless. There are so many common uses of asbestos that it is nearly impossible to build a Navy ship free of the mineral.

In regard to question #3, data concerning the amount of asbestos used as thermal insulation in Navy ships is obtainable by search of weight control reports for individual ships. The USS PAUL F. FOSTER (DD-964) contains 87,634 pounds of thermal insulation. The quantity of thermal insulation used on the remaining classes of ships (CCNs, SSNs, YTBs, YONs, AORs and AGORs) listed in Attachment #1 as having asbestos thermal insulation will be provided not later than 15 January 1979. It must be pointed out that this information will be the weight of thermal insulation installed and will not include the amount of asbestos used in other applications, such as pipe hanger liners, gaskets, etc.

You also asked why non-asbestos materials could not be used for thermal insulation in all ships delivered since 1973. Shipbuilding is an enormously complex task. For large ships, it takes 10 or more years from conceptual design to deliver the first of a class. The design of systems and components, the assemblage of materials, contract placement, work scheduling, hiring and training of workers and many other complex aspects must be carefully coordinated. When such a basic, fundamental change as switching from asbestos insulation to fiberglass insulation is made, all these aspects are affected. It is simply not possible to change, in an instant, from asbestos insulation to non-asbestos insulation throughout the Navy fleet. Decisions to replace asbestos thermal insulation with non-asbestos materials had to be made on an individual ship or ship class basis, considering the state of ship construction completion and the cost and schedule delay associated with the change. Likewise, it was necessary to negotiate contract modifications with each shipbuilder to eliminate the installation of asbestos. In some cases, the Navy was successful well before 1973-74. For example, the Navy approved use of asbestos-free materials in CVN 68 class propulsion plants in 1971 and in the last two SSN 637 class submarine propulsion plants in 1972. For other ships, such as the first eleven of our new DD 963 class ships, the change was not accomplished until later. Consequently, ships well under construction and already insulated at that time continued through to delivery as late as May 1978 with asbestos insulation. Consequently, some ships were delivered with asbestos thermal insulation since 1973.

Additionally, I must correct your apparent misconception of the importance of the 1973-74 date. The Navy usually procures materials for ship construction, including thermal insulation, in accordance with product specifications. These documents describe, for the supplier, the product the Navy wants. In the case of insulation specifications, changes were made as early as 1971 to specify that the Navy wanted materials with little or no asbestos. By late 1973, these specifications had been changed to call for asbestos-free materials. The fact, however, that these product specifications were changed to call for asbestos-free materials does not mean that shipbuilders must stop using asbestos products. Many ship-sets of asbestos containing products, purchased to earlier versions of the product specification had already been bought and in some cases installed. Tens of thousands of pounds of asbestos products remained in warehouses, aboard ships, and in shipyards, in active use. With no positive action by the Navy, many additional years would pass before the asbestos products were exhausted. Although, in some cases, separate action by some Navy components resulted in asbestos-free products being used prior to 1973 or 1974, the overall Navy policy prohibiting the use of such material could not be promulgated until we had some assurance that it could be followed. By 1975, asbestos-free materials were generally available to all Navy agencies and the no-asbestos policy statement, NAVSEAINST 5100.2 of 24 October 1975 issued. I hope this clarifies this important point.

In regard to question #5, non-asbestos materials approved by the Department of the Navy for use as thermal insulation on naval ships include calcium silicate (with non-asbestos fillers), fibrous glass, refractory felt (alumina/silica), elastomeric foam and cellular glass. While all types are currently being used, fibrous glass and calcium silicate are the two principal asbestos replacement materials for thermal insulation.

In response to question #6, cost data for reinsulating some types of ships with non-asbestos materials have been developed and are as follows:

CLASS	EST. COST PER SHIP (Million)	ACTIVE SHIPS	TOTAL EST. COST (Million)
FRIGATE:			
FF-1037	$2.75	2	$ 5.50
FF-1040	2.75	10	27.50
FF-1052	4.32	45	194.40
DESTROYER:			
DD & DDG	5.37	65	349.05
SUBMARINE:			
SSN-578	1.62	4	6.48
SSN-594/637	3.90	57	222.30
SSBN	3.90	41	159.90
Total		224	$965.13

These estimates are for the removal of asbestos thermal insulation from piping, equipment and ventilation ducting, excluding nuclear equipment components, and reinsulation with non-asbestos material. These estimates do not include asbestos removal/replacement in applications other than thermal insulation, and do not include the whole fleet, only about half of it. Furthermore, these cost estimates are tentative and have not been validated. It is anticipated that return cost data for total thermal reinsulation obtained from three ships, will be available in February 1979. These tentative estimates and return cost data mentioned above can be extrapolated to obtain a cost estimate to reinsulate the entire fleet.

Regarding removal of all asbestos aboard Naval vessels, Navy policy has required replacement of asbestos insulation with substitute material when insulated equipment and machinery are repaired. Recently, this policy has been modified to require, in addition, selective replacement of asbestos insulation in those high-maintenance areas where repairs may be anticipated during the subsequent operating cycle of the vessel. During the next five years, implementation of this policy will result in the removal of all shipboard thermal asbestos except that 30 to 50 percent which is normally untouched during the life of the ship.

The concept of one-time total asbestos removal on all ships has been under intensive review to determine if such a policy revision is technically and economically feasible. Initial analysis does not justify such a policy change. While there is no intention to conduct a trade-off of human health for maintenance and repair funds, the funds involved are substantial. As indicated above, the estimated cost to reinsulate just three classes of ships (frigates, destroyers, and submarines) is $965.13 million. It is reasonable to assume that the estimated cost for total asbestos replacement in all ships will approach two billion dollars. The true cost is likely to increase significantly because of delay and disruption effects, increased overhead charges due to longer overhauls, and increased shipyard manning to handle the added work.

This enormous cost is not the only reason that the Navy has not adopted a one-time total asbestos removal policy. Other factors which support the present policy are the following:

a. During the life of a ship, 30 to 50 percent of the total asbestos insulation will never be touched except for painting or making minor repairs to the lagging cover material. Measurements show that operating ships equipped with asbestos insulation have airborne asbestos levels at or below 0.1 fibers per cubic centimeter. This value is comparable to the ambient level reported for the City of Philadelphia by Dr. Irving Selikoff, a well known asbestos expert. Therefore, on the basis of existing information, a properly maintained and operating ship should not present an active asbestos hazard.

b. The Navy requires and enforces stringent asbestos work standards which control exposure of workers to asbestos dust during ship repair. By minimizing the amount of asbestos work done, the potential exposure, residual dust, and overhaul cost are minimized.

c. Fibrous glass and calcium silicate products are being used as asbestos replacements. The National Institute for Occupational Safety and Health has recommended controls for fibrous glass work that are nearly identical to the controls now imposed for asbestos work. It seems reasonable to assume that if the Institute recommends nearly identical controls for two similar substances, comparable hazards could be known or suspected. Therefore, it is not at all certain that wholesale replacement of asbestos products gains any medical advantage at all.

d. Despite the enormous cost, replacement of asbestos thermal insulation in ships will not eliminate asbestos exposure of civilian and military Navy personnel. According to the National Institute for Occupational Safety and Health, asbestos dust is everywhere. Low but easily measurable levels of airborne asbestos dust are found in the air of cities throughout the country, much of it generated by automotive brake and clutch linings. Asbestos is used in so many products that most of the U. S. populace unknowingly encounters it daily.

I hope this information satisfactorily answers your inquiry regarding the extent to which asbestos is being used in the Navy's shipbuilding and ship repairing operation.

Sincerely,

T. J. B[illegible]
Vice Admiral, U.S. Navy
Deputy Chief of [illegible]
Operations [illegible]

ATTACHMENT #1

LIST OF U. S. NAVY SHIPS
DELIVERED SINCE 1973 OR UNDER CONSTRUCTION
(Ship Class, Name and Hull Number and Status of Thermal Insulation)

ENCL (1) TO CNO SER 4542/318054 OF 5 Jan 1979

NAME	HULL NO.	DATE START	DATE DEL.	THERMAL INSULATION (See Note 1)
AMPHIBIOUS ASSAULT SHIP (GENERAL PURPOSE) - LHA				
TARAWA	1	1/71	5/76	Asbestos-free thermal insulation except for boiler casing insulation and removalable pads.
SAIPAN	2	11/71	8/77	
BELLEAU WOOD	3	8/72	9/78	Asbestos-free thermal insulation except for boiler casing insulation.
NASSAU	4	5/73	7/79	
PELELIU	5	4/74	5/80	Asbestos-free thermal insulation.
DESTROYER - DD				
SPRUANCE	963	6/72	8/75	Asbestos thermal insulation
PAUL F. FOSTER	964	10/72	2/76	
KINCAID	965	2/73	6/76	
HEWITT	966	2/73	9/76	
ELLIOT	967	7/73	12/76	
ARTHUR W. RADFORD	968	7/73	4/77	
PETERSON	969	1/74	6/77	
CARON	970	1/74	9/77	
DAVID R. RAY	971	4/74	10/77	
OLDENDORF	972	4/74	1/78	
JOHN YOUNG	973	4/74	5/78	
COMTE DE GRASSE	974	4/74	7/78	Asbestos-free thermal insulation
O'BRIEN	975	12/74	11/77	
MERRILL	976	12/74	1/78	
BRISCOE	977	3/75	5/78	
STUMP	978	3/75	7/78	
CONOLLY	979	6/75	9/78	
MOOSBRUGGER	980	6/75	1/79	
JOHN HANCOCK	981	8/75	4/79	
NICHOLSON	982	8/75	6/79	
JOHN RODGERS	983	10/75	9/79	
LEFTWICH	984	10/75	11/79	
CUSHING	985	12/75	2/80	
HARRY W. HILL	986	12/75	3/80	
O'BANNON	987	3/76	4/80	
THORN	988	3/76	5/80	
DEYO	989	11/76	6/80	
INGERSOLL	990	11/76	7/80	
FIFE	991	7/77	9/80	
FLETCHER	992	7/77	9/80	

NAME	HULL NO.	DATE START	DATE DEL.	THERMAL INSULATION (See Note 1)
GUIDED MISSILE FRIGATE - FFG				
OLIVER HAZARD PERRY	7	12/74	11/77	
MCINERNEY	8	12/76	1/80	
WADSWORTH	9	1/77	2/80	
DUNCAN	10	2/77	3/80	
CLARK	11	1/77	6/80	
GEORGE PHILIP	12	4/77	7/80	
Unchristened	13	3/77	10/80	
SIDES	14	7/77	11/80	Asbestos-free thermal insulation
Unchristened	15	3/77	2/81	
Unchristened	16	3/77	5/81	
H.M.A.S. ADELAIDE	17	5/77	8/80	
H.M.A.S. CANBERRA	18	11/77	12/80	
Unchristened	19	1/78	4/81	
ANTRIM	20	2/78	4/81	
Unchristened	22/23	6/78	8/81	
FRIGATE - FF				
AINSWORTH	1090	11/69	2/73	
MILLER	1091	12/69	4/73	
THOMAS C. HART	1092	12/69	6/73	
CAPODANNO	1093	1/70	10/73	Asbestos thermal insulation
PHARRIS	1094	4/70	12/73	
TRUETT	1095	4/70	5/74	
VALDEZ	1096	5/70	7/74	
MOINESTER	1097	5/70	10/74	
PATROL, COMBATANT MISSILE (HYDROFOIL) - PHM				
PEGASUS	1	2/73	6/77	Asbestos-free thermal insulation. However, non-structural bulkheads constructed of Marinite which contains asbestos.
GUIDED MISSILE CRUISER (NUCLEAR PROPULSION) - CGN				
CALIFORNIA	36	8/69	2/74	Asbestos thermal insulation
SOUTH CAROLINA	37	3/70	11/74	
VIRGINIA	38	12/71	8/76	Asbestos-free thermal insulation except for a few removable pads in propulsion plant.
TEXAS	39	8/72	7/77	
MISSISSIPPI	40	11/73	7/78	
ARKANSAS	41	9/74	6/80	
FLEET OCEAN TUG - T-ATF				
POWHATAN	166	6/76	11/78	
NARRAGANSETT	167	1/77	6/78	
CATAWBA	168	1/77	9/79	
NAVAJO	169	1/77	11/79	Asbestos-free thermal insulation
Unchristened	170	8/78	12/80	
Unchristened	171	8/78	12/80	
Unchristened	172	8/78	3/81	

NAME	HULL NO.	DATE		THERMAL INSULATION (See Note 1)
		START	DEL.	
AIRCRAFT CARRIER (NUCLEAR PROPULSION) - CVN				
NIMITZ	68	10/67	4/75	Asbestos-free thermal insulation except for catapult trough insulation.
EISENHOWER	69	2/70	9/77	
VINSON	70	2/75	-	Asbestos-free thermal insulation except for catapult trough insulation.
DESTROYER TENDER - AD				
YELLOWSTONE	41	1/77	1/80	Asbestos-free thermal insulation.
ACADIA	42	7/77	9/80	
Unchristened	43	5/78	8/81	
OILER - AO				
	177	1/78	12/79	Asbestos-free thermal insulation
	178	5/78	6/80	
SUBMARINE TENDER - AS				
EMORY S. LAND	39	6/75	1/79	Asbestos-free thermal insulation
FRANK CABLE	40	10/75	9/79	
MCKEE	41	8/77	8/81	
SUBMARINE (NUCLEAR PROPULSION) - SSN				
WILLIAM H. BATES	680	10/68	5/73	Asbestos thermal insulation
TUNNY	682	2/69	1/74	
PARCHE	683	9/69	8/74	
CAVALLA	684	2/69	4/73	
GLENARD P. LIPSCOMB	685	5/69	12/74	
L. MENDEL RIVERS	686	9/70	12/74	Asbestos-free thermal insulation
RICHARD B. RUSSELL	687	1/71	8/75	
LOS ANGELES	688	5/71	11/76	Asbestos free thermal insulation except for air conditioning access plate covers which are being changed to asbestos free materials and a few removable pads in the propulsion plant.
BATON ROUGE	689	1/72	6/77	
PHILADELPHIA	690	7/72	6/77	
MEMPHIS	691	6/73	12/77	
OMAHA	692	10/71	3/78	
CINCINNATI	693	9/72	5/78	
GROTON	694	10/71	6/78	
BIRMINGHAM	695	5/73	11/78	
NEW YORK CITY	696	10/72	3/79	
INDIANAPOLIS	697	3/73	8/79	
BREMERTON	698	1/74	10/79	
JACKSONVILLE	699	4/74	2/80	
DALLAS	700	6/74	6/80	
LA JOLLA	701	4/75	10/80	

NAME	HULL NO.	DATE START	DATE DEL.	THERMAL INSULATION (See Note 1)
SUBMARINE (NUCLEAR PROPULSION) - SSN				
PHOENIX	702	6/75	2/81	
BOSTON	703	7/75	6/81	
BALTIMORE	704	7/76	2/82	
Unchristened	705	8/76	6/82	
Unchristened	706	8/76	10/82	
Unchristened	707	8/76	1/83	Asbestos free thermal insulation except for air conditioning access plate covers which are being changed to asbestos free materials and a few removable pads in the propulsion plant.
Unchristened	708	8/76	9/83	
Unchristened	709	8/76	1/84	
Unchristened	710	8/76	5/84	
SAN FRANCISCO	711	2/76	7/80	
Unchristened	712	6/76	6/81	
Unchristened	713	3/76	2/82	
Unchristened	714	4/78	9/82	
FLEET BALLISTIC MISSILE SUBMARINE (NUCLEAR PROPULSION) (TRIDENT) - SSBN				
OHIO	726	7/74	11/80	
MICHIGAN	727	8/75	11/81	
Unchristened	728	2/76	7/82	Asbestos-free thermal insulation.
Unchristened	729	1/77	3/83	
Unchristened	730	2/78	11/83'	
LARGE HARBOR TUG - YTB				
HYANNIS	817	1/72	5/73	
MECOSTA	818	1/72	6/73	
IUKA	819	1/72	7/73	
WANAMASSA	820	1/72	7/73	
TONTOGANY	821	1/72	7/73	Asbestos thermal insulation.
PAWHUSKA	822	1/72	9/73	
CANONCHET	823	1/72	9/73	
SANTAQUIN	824	1/72	9/73	
WATHENA	825	1/72	10/73	
WASHTUCNA	826	1/72	12/73	
CHETEK	827	1/72	12/73	
CATAHECASSA	828	6/73	8/74	
METACOM	829	6/73	9/74	
PUSHMATAHA	830	6/73	10/74	
DEKANAWIDA	831	6/73	10/74	
PETALESHARO	832	6/73	11/74	Asbestos-free thermal insulation.
SHABONEE	833	6/73	12/74	
NEGWAGON	834	6/73	5/75	
SKENADA	835	6/73	6/75	
POKAGON	836	6/73	6/75	
	838	2/74	6/75	

NAME	HULL NO.	DATE START	DATE DEL.	THERMAL INSULATION (See Note 1)
FUEL OIL BARGE - YON				
	282	3/72	8/73	Not Applicable
	283	3/72	8/73	
	284	4/73	12/74	
	285	4/73	9/75	
	286	7/73	12/74	
	287	3/74	1/75	
	288	7/73	9/75	
	289	1/74	10/75	
	291	9/74	4/75	
	292	3/75	11/75	
	293	2/75	10/75	
	294	4/75	3/76	
	295	5/75	3/76	
REPLENISHMENT OILER - AOR				
KALAMAZOO	6	3/69	7/73	Asbestos thermal insulation.
ROANOKE	7	10/73	10/76	Asbestos-free thermal insulation.
OCEANOGRAPHIC RESEARCH SHIP - AGOR				
GYRE	21	8/72	11/73	Asbestos thermal insulation.
MOANA WAVE	22	9/72	1/74	

Note 1. As used herein, thermal insulation refers to such insulation for machinery, equipment and piping. In addition to the exceptions noted for specific ships, asbestos is also used in shipboard applications for which no suitable (asbestos-free) substitutes have as yet been designated, i.e., gaskets and pipe hanger liners.

DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, D.C. 20350

IN REPLY REFER TO
Ser 454D/318571
8 February 1979

Dear Mr. Hughes,

In further response to your inquiry of October 5, 1978 for information on asbestos use in the Navy's shipbuilding and ship repair operations, it is estimated that the quantity of thermal insulation used on each major class of ships is as follows:

Ship Class	Estimate of Thermal Insulation (lbs)
Destroyer - DD	87,634
Guided Missile Cruiser - CGN	123,770
Submarine - SSN	62,465
Replenishment Oiler - AOR	78,515
Oceanographic Research Ship - AGOR	*
Large Harbor Tug - YTB	6,858
Fuel Oil Barge - YON	**

* Weight control reports for AGOR class ships have not been prepared. Data unavailable.

**Weight control reports for YONs do not make any reference to thermal insulation.

As noted in my earlier response of January 5th, this information represents the weight of thermal insulation installed and does not include asbestos used in other applications, such as pipe hanger liners, gaskets, etc.

I hope that this information satisfactorily answers your question regarding the extent of thermal insulation being used in the Navy's shipbuilding and ship repair operations.

Sincerely,

TJBigley

T. J. [illegible]
Vice Admiral, U.S. Navy
Deputy Chief of Naval
Operations (Logistics)

Mr. Robert F. Hughes
Assistant Director
U. S. General Accounting Office
Human Resources Division
Washington, D C. 20548

DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20350

12 SEP 1979

Mr. Gregory J. Ahart
Director, Human Resources
 Division
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Ahart:

The enclosed comments reply to your letter of 6 July 1979 to the Secretary of Defense regarding "Asbestos Pollution Problems at U. S. Naval Shipyards" (HRD 79-99, OSD Case #5230).

Sincerely,

EVERETT PYATT
Principal Deputy
Assistant Secretary of the Navy
(Logistics)

Enclosure

GAO note: The page and line references in the enclosure to this letter may not correspond to those in the final report.

Department of the Navy Comments
on
GAO Draft Report
on
Asbestos Pollution Problems at U.S. Naval Shipyards
(OSD Case #5230)

1. GAO Findings and Recommendations

GAO found that "although recently constructed Navy ships have little or no asbestos insulation, other Navy ships contain large quantities of asbestos. The Navy believes a one-time asbestos removal program is not warranted because it would be very costly and provide limited benefits. It was also found that while the Navy has made considerable efforts to protect workers from asbestos, more needs to be done to ensure proper implementation of safety procedures. GAO recommended that: (1) naval shipyard asbestos control and personnel protection programs be effectively monitored and enforced; and (2) sufficient resources be provided to effectively implement these programs.

2. Summary of Department of the Navy Position

a. The Navy concurs in the recommendation for effective monitoring and enforcement of asbestos controls.

b. Actions are continuing within the Navy to effect improvements through organizational changes, staffing increases and internal audits.

3. Specific Navy Comments on the Draft Report

a. The report gives the general connotation that an exposure to asbestos carries with it the certainty of disease. This inference could be attenuated by use of the following explanatory language in an introductory paragraph.

> "Any reference in this report to an 'exposure' to asbestos is to be construed as meaning coming into contact with an environment containing airborne asbestos fibers in concentrations greater than those permitted by OSHA standards. Further, no inference as to the result of such exposure, i.e., disease, is intended."

b. In the discussion of the Navy's selective asbestos rip-out program, the fact that the Congress failed to provide funds requested in FY 79 should be acknowledged.

c. Page 3, lines 11 and 12 - The statement as worded omits an important qualification provided in the Navy reasoning for not adopting a one-time total asbestos removal policy (see enclosure (1), page 5, paragraph a, first sentence). Recommend GAO add the following phrase to the end of the statement: "except for painting or making minor repairs to the lagging and cover material".

d. Page 3, lines 18-21 - As worded, the sentence implies that there are options in lieu of fibrous glass, which may not always be true. Recommend inserting "a primary" in place of "one of the" and making "materials" singular.

e. Page 6, second paragraph - Regarding the discussion of protective clothing problems (discomfort/heat), the Navy has long recognized the need to improve worker comfort. The Philadelphia Naval Shipyard has developed a protective suit that allows for body cooling. This suit is undergoing an industrial hygiene evaluation to insure it meets or exceeds the personnel protection required by current OSHA respiratory protection standards. When approved for use, it should enable substantial annual savings in direct procurement costs made possible by its one-piece construction instead of the several garment pieces which must now be separately procured and taped together when worn. In addition to direct procurement cost savings, the use of vortex-cooled air for body cooling should greatly increase worker comfort, improve worker morale and, consequently, result in productivity/cost benefits of potential greater value than the procurement cost savings. The Navy will seek OSHA and NIOSH approval of the Philadelphia suit on a priority basis in order to realize the above urgently needed benefits.

f. Page 7, last line - While a full beard could result in an improperly fitting respirator, there is no positive indication based solely on observation that a program deficiency does exist. Nonetheless, the naval shipyards are currently reviewing controls on facial hair and are developing stronger language that will prohibit any hair that interferes with a good respirator face seal.

Mr. BIAGGI. The meeting is adjourned.

QUESTIONS ON ASBESTOS—MEDICAL RESEARCH SCIENTISTS

1. Based upon your studies and experiments regarding asbestos-related health hazards, in your professional judgment, does operational exposure to asbestos in the shipboard setting warrant the adoption and enforcement of asbestos control measures at the present time?

2. What dose response level in your judgment constitutes a significant risk to the health of shipboard personnel?

3. What educational, medical surveillance, and exposure control practices would you recommend to avoid or reduce significant health risks to shipboard personnel?

QUESTIONS ON ASBESTOS—MEBA

1. What health hazards to shipboard personnel from asbestos exposure have you identified? Do you have any studies on data to support the degree and extent of this risk? From routine maintenance activities—from underway repairs? From blowing tubes? From rough weather?

2. I understand that your union has taken several steps to publicize the dangers of asbestos—and especially the increased risk to those who smoke. Would you give us the details on that?

What actions has your union taken to educate your members to the asbestos health hazard? (e.g., smoking cessation programs, work practice exposure reduction measures—like fine spraying during repairs with adequate space exhaust, use of protective clothing, reduction in exposure time).

What further actions do you believe the Coast Guard should take to eliminate the asbestos hazard to merchant seamen? (e.g., banning use of asbestos in new vessel construction—removal of asbestos from existing vessels during periodic overhauls—conduct of underway repairs only in emergency circumstances, and only then with the use of supplied air and sealing off working area).

What emergency repair and routine maintenance activities are undertaken in engine room spaces that could result in release of asbestos fibers into the air? Do you believe that deterioration of thermal insulation on board older vessels may also lead to asbestos release, posing a shipboard health hazard?

3. Assuming significant quantities of asbestos fibers were released in a ship's engine room through the conduct of underway repair work, could they be easily transmitted to other areas of the ship through duct work or by adherence to contaminated clothing, posing a hazard to other personnel?

4. Do you advocate the adoption of the Occupational Safety and Health exposure standard—or a more stringent standard such as the National Institutes of Safety and Health revised recommended standard—for application in the shipboard setting?

QUESTIONS ON ASBESTOS—JOINT MARITIME CONGRESS

1. In your letter of December 4 regarding the asbestos issue, you recommended that the Coast Guard promulgate an asbestos standard applicable to merchant marine personnel in private shipyards. The Occupational Safety and Health Administration has informed the subcommittee that it has exclusive regulatory jurisdiction over private shipyards and on board vessels while undergoing repair in private shipyards—and that the Navy has exclusive jurisdiction over construction activities in naval shipyards.

By inference then, the Coast Guard has no juridiction to enforce asbestos standards in these situations. Can you comment on OSHA's jurisdictional interpretation? Can you comment on OSHA's enforcement of asbestos standards in private shipyards to date?

Your letter also suggested the adoption of a uniform asbestos standard, applicable on board both naval and U.S.-flag merchant vessels and in all U.S. shipyards, both public and private. In your opinion, what asbestos exposure level and work practices to minimize asbestos exposure should such a standard contain?

3. Would you advocate the monitoring (air sampling) of U.S.-flag merchant vessels while in port for compliance with any asbestos exposure standard adopted in the shipboard setting?

4. In your statement, you make reference to the U.S. Public Health Service's role in providing medical services to Coast Guard and U.S. Merchant Marine personnel. In this regard, would you recommend that the P.H.S. institute a program to educate merchant marine personnel regarding asbestos exposure risks and remedial practices and to undertake appropriate medical surveillance of personnel exposed to asbestos fibers in the course of maritime employment?

[Whereupon, at 3:55 p.m., the subcommittee adjourned, to reconvene subject to the call of the Chair.]

SHIPBOARD ASBESTOS EXPOSURE

TUESDAY, FEBRUARY 12, 1980

House of Representatives,
Subcommittee on Coast Guard and Navigation,
Committee on Merchant Marine and Fisheries,
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:30 a.m., in room 1334, Longworth House Office Building, Hon. Mario Biaggi (chairman of the subcommittee) presiding.

Present: Representatives Biaggi, de la Garza, Stack, and Hughes.

Staff present: Ricardo A. Ratti, Larry Mallon, Cyndy Milkinson, John Bruce.

Mr. Biaggi. Good morning. The meeting is called to order.

The Subcommittee on Coast Guard and Navigation meets today to continue its investigation of the asbestos exposure hazard to personnel on board U.S. merchant vessels and Coast Guard cutters.

In our previous hearing, we defined the parameters of our investigation by posing several questions to which these hearings should provide answers. Those questions were:

What is the present scope and degree of the asbestos risk to merchant marine and Coast Guard personnel in their working environment?

What is being done about this hazard—by the Federal Government, by private industry, or by labor unions?

Is additional legislation necessary on this subject—or can existing law be interpreted to encompass general occupational safety and health regulations if properly enforced?

The previous hearing provided partial answers to these questions.

At this point in our investigation, two distinct forms of asbestos exposure to shipboard personnel have been described.

First, is the incidental release of an unusually large concentration of asbestos fibers, following underway repair work or "ripouts" in engineering spaces. From testimony received thus far, this condition represents a severe, acute hazard of asbestos exposure to shipboard personnel.

Second, is the chronic hazard posed by background levels of asbestos exposure, caused by spontaneous flaking of asbestos fibers from shipboard vibration or deterioration of pipe lagging. This results in concentrations of asbestos fibers in excess of accepted or recommended standards applicable to the occupational environment.

The first form of exposure is reportedly on the rise as increasing operating expenses and decreasing turnaround times for vessels are resulting in more routine repairs being performed at sea. If this hazardous condition indeed exists—and if it is encompassed by provisions of existing law—it should be addressed in an expeditious manner.

In this regard, we understand that the Navy has adopted strict work practices and procedures applicable to underway repairs that might involve release of asbestos fibers. These practices and procedures should be reviewed for potential application on board both Coast Guard and U.S.-flag merchant vessels.

The primary regulatory objective in this instance should be to provide the same degree of health protection to all seafaring personnel—including Navy, Coast Guard and merchant marine—through the promulgation and enforcement of uniform, consistent standards and regulations applicable on board all U.S.-flag vessels, public and private.

The second form of asbestos exposure is more complex. There are some 457 U.S.-flag merchant vessels built between World War II and 1972 with substantial quantities of asbestos on board—utilized primarily for thermal insulation. The subcommittee has been advised that beginning in 1972 use of asbestos in new vessel construction in U.S. shipyards has been virtually eliminated. More recently, beginning in 1978, the Maritime Administration has required the use of asbestos substitutes in all vessels constructed with construction differential subsidies in U.S. shipyards.

Nevertheless, certain maritime interests have recommended to the subcommittee that:

First, all these vessels should be sampled to determine background concentrations and primary sources of release of asbestos fibers, comparing these emission levels with the OSHA—better still—the lower revised recommended NIOSH exposure standard.

Second, an asbestos removal policy and timetable should be adopted applicable to these vessels, with the requirement for substitution with approved substitute materials wherever possible.

Third, in the alternative, regulatory controls, for example, requiring plastic coating of exposed asbestos surfaces, should be utilized to reduce risk of exposure to the lowest level achievable.

Alleviation of this potentially broader hazard, if proven to pose a significant risk to shipboard personnel, will be more difficult. The Maritime Administration is presently engaged in a long-term study of the general shipboard asbestos risk—including exampling of general air quality and individual exposure to asbestos on board U.S.-flag vessels. In addition, the Coast Guard has been studying this issue for some time, with due concern for its own and merchant marine personnel.

If this hazard proves significant, the Coast Guard—under either existing or new authority—could adopt a NIOSH or OSHA-type standard, applicable to all U.S.-flag merchant vessels. This standard could then be utilized as a basis for promulgating regulations and developing an enforcement strategy to minimize shipboard asbestos exposure hazards.

This is a synopsis of the current status of our investigation. We hope that today's hearing will enable us to determine if additional legislation is necessary and assist us in resolving the asbestos issue—either through the regulatory process or through a finding that further regulatory action is not warranted at this time.

I ask unanimous consent that the following document be entered into the hearing record at this point: a Chief of Naval Operations Instruction No. 6260.1A, concerning the control of asbestos exposure to Navy personnel and environment; a memorandum of understanding between the U.S. Coast Guard and the Occupational Safety and Health Administration, dated December 19, 1979; as well as a Coast Guard Commandant Instruction No. 6260.10 concerning asbestos exposure control; Maritime Administration Guidelines Control of Asbestos Fiber Hazards, National Defense Reserve Fleet, Final Report of Phase I of the Maritime Administration's Report on Assessment of Asbestos Concentrations in the Enginerooms of Marine Vessels; section 75 of the MarAd Standards Specifications for Merchant Ship Construction.

Without objection, so ordered.

[The following was received for the record:]

DEPARTMENT OF THE NAVY
Office of the Chief of Naval Operations
Washington, D.C. 20350

OPNAVINST 6260.1A
Op-45
8 August 1978

OPNAV INSTRUCTION 6260.1A

From: Chief of Naval Operations
To: All Ships and Stations (less Marine Corps field addresses not having Navy personnel attached)

Subj: Control of asbestos exposure to naval personnel and environs

Ref: (a) Occupational Safety and Health Act of 1970, 29 U.S.C. § 651 et seq. (1970)
(b) U.S. Department of Labor, Occupational Safety and Health Administration, General Industry-Safety and Health Standards, OSHA 2206 (Revised January 1976) as modified in 29 C.F.R. § 1910 et seq. (1977)
(c) Executive Order 11807, "Occupational Safety and Health Program for Federal Employees", 3 C.F.R. § 897 (1971-1975 Compilation)
(d) Clean Air Act, as amended, 42 U.S.C. § 7401 et seq. (1970)
(e) 40 C.F.R. Part 61 (1977)
(f) OPNAVINST 5100.8E

Encl: (1) Occupational Health Standards, Control, and Medical Surveillance Requirements
(2) National Emission Standard for Asbestos
(3) Industrial Hygiene Technical Assistance Directory

1. Purpose.

a. Occupational Health - To comply with national safety and health standards on asbestos promulgated by reference (a) and implemented by references (b) and (c).

b. Environmental Protection - To comply with the National Emission Standard for asbestos promulgated by reference (d) and implemented by reference (e).

2. Cancellation. OPNAVINST 6260.1.

3. Background

a. Asbestos is a general term used to describe several fibrous mineral silicates. Although there are many asbestos minerals, only six are of commercial importance. They are: chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite. Major uses of asbestos are for asbestos cement products, floor tiles, fireproofing, high temperature insulation, asbestos cloth, friction materials (such as brake linings and clutch facings), various gasket materials, and miscellaneous other products.

b. Inhalation of asbestos fibers can produce severe lung damage in the form of disabling or fatal fibrosis of the lungs. Asbestosis means fibrosis of the lungs due to inhaled asbestos fibers. The use of the term "asbestosis" in a generic sense for all asbestos-associated disorders including pleural plaques is imprecise and confusing. Asbestos has also been found to be a causal factor in the development of carcinoma of the lung and malignant mesothelioma, as well as cancer of the gastro-intestinal tract. A long latency period of 20-40 years between first exposure to asbestos and the appearance of a malignancy is frequently noted.

c. Some examples of tasks which can generate concentrations of airborne asbestos which exceed permissible limits are: the fabrication, installation, repair or removal ("rip-out") of asbestos insulation materials, power sawing of asbestos-containing fire retardant building materials, and brake relining and repair work.

d. Although asbestos-free substitute materials are being developed, asbestos materials continue to be used in the Navy in such applications as gaskets and pipe hanger liners. In addition, ships presently in commission and shore installations have asbestos boiler and pipe insulation that will involve "rip-out" and potential personnel exposure for another 20 or more years.

e. Recognizing the serious health implications of asbestos exposure to humans, the government has imposed stringent occupational health and environmental protection standards (references (b) and (c) respectively) for the control of asbestos. These standards and controls, specified in enclosures (1) and (2), must be strictly enforced and followed by all Navy civilian employees, both appropriated and nonappropriated fund, and military personnel afloat and at all shore activities.

4. Action

a. The Chief, Bureau of Medicine and Surgery (BUMED) shall centrally manage the Asbestos Medical Surveillance Program ashore and afloat. The Chief, BUMED shall also provide professional, technical, and health educational assistance to commands for the purpose of evaluating asbestos exposure in accordance with reference (f). Enclosure (3) provides a list of activities where industrial hygiene assistance is available.

b. The Chief of Naval Material shall, in coordination with BUMED, provide advice and technical assistance to define appropriate engineering and work practice controls and develop remedial projects.

c. Major claimants shall insure program support by budgeting the resources required to meet the regulatory standards for the control of asbestos as prescribed by this instruction.

d. Commanding officers for shore activities shall insure that:

(1) Appropriate occupational health/industrial hygiene control measures and monitoring procedures in enclosure (1), or headquarters approved alternatives that provide substantially equivalent protection, are applied to processes and procedures using asbestos or asbestos containing materials.

(2) The National Emmission Standard for Asbestos is complied with as prescribed in enclosure (2).

e. Commanding officers of afloat commands shall comply with the provisions of enclosure (1) to the maximum extent feasible. Specific guidance for afloat commands will be provided.

5. Report and Form

a. The information required by this directive does not constitute a formal reporting requirement and is exempt from reports control.

b. Local reproduction has been authorized for OPNAV 6260/1 (7-78) by the Navy Publications and Printing Service Management Office.

JOHN D. CHASE
Deputy Chief of Naval Operations (Logistics)
Acting

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Phila., PA 19120

OCCUPATIONAL HEALTH STANDARDS, CONTROL AND MEDICAL SURVEILLANCE REQUIREMENTS

1. Permissible Exposure Concentration

a. "Time Weighted Average (TWA)" - The 8-hour airborne concentration of asbestos fibers to which civilian employees and military personnel may be exposed shall not exceed two (2) fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraphs 5 and 6.

b. "Ceiling Limit" - Civilian employees and military personnel shall not be exposed at any time to airborne concentrations of asbestos in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air.

2. Medical Surveillance Action Level. "Medical Surveillance Action Level" for asbestos shall be defined to include any individual who because of employment is required to enter or work on a regular basis in areas containing an airborne concentration of asbestos at or above 0.5 fibers/cubic centimeter greater than 5 micrometers in length as determined by phase contrast microscopy. "On a regular basis" is defined as 15 separate days in any quarter during a calendar year or 45 days per year. Additionally, those personnel exposed at any time, for any length of time, to airborne concentrations in excess of the "ceiling limit" shall be included under the "Medical Surveillance Action Level". The aforementioned term "Medical Surveillance Action Level" is defined and used only for the purpose spelled out specifically in this instruction and to identify those individuals who will be included in the Asbestos Medical Surveillance Program.

3. Engineering and Work Practice Control Measures

a. Local exhaust ventilation is frequently required to ensure that atmospheric levels of asbestos do not exceed maximum permissible limits. General requirements for the design and use of ventilation to reduce exposures can be found in attachment (1). Specific guidance in adapting attachment (1) to each asbestos operation may be obtained from activities listed in enclosure (3).

b. As practicable, asbestos shall be handled, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the permissible exposure concentrations.

c. Asbestos-free substitute materials shall be tested, under the technical management of cognizant headquarters activity, and, if acceptable shall be used in place of asbestos containing materials.

d. All external surfaces in the work area where asbestos is handled shall be maintained free of visible accumulations of loose asbestos fibers which could result in airborne concentrations in excess of the limits set forth in paragraph 1.

e. Disposal of asbestos, asbestos-containing materials, and asbestos-contaminated waste shall be in accordance with the procedures listed in attachment (2).

f. To minimize exposure potential, shipboard or shore facility asbestos removal operations shall, to the maximum extent feasible, be performed during the second or third shifts or on weekends/holidays.

4. Personnel Protective Equipment

a. Compliance with permissible exposure limits shall not be achieved by the use of respirators except as indicated in attachment (3). Assistance in the specific application of attachment (3) may be obtained from activities listed in enclosure (3).

b. Special clothing such as coveralls or disposable whole body clothing and head, glove and foot coverings shall be supplied to and worn by personnel exposed to airborne asbestos fibers. See attachment (4) for details.

c. Change rooms shall be provided, as close as practical to the asbestos work area, when exposure to the airborne concentration of asbestos fibers is in excess of the permissible exposure limits as given in paragraph 1. Details are provided in attachment (4).

5. Method of Measurement. All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400-450 magnification, using phase contrast illumination, with sample mounted in high viscosity solution of membrane filter material. It is to be noted that if the material which is suspected of being the source of the airborne fibers is known to contain asbestos, then all airborne fibers (fibers having an aspect ratio of 3:1 and longer than 5 micrometers) are to be counted as asbestos fibers.

6. Environmental Monitoring

a. An environmental monitoring plan shall be established to characterize airborne asbestos levels of all operations. Within a class/category of similar operations sampling shall be of such frequency and pattern to accurately and reproducibly represent the airborne levels produced by a typical operation within the class/category. Sampling of all areas where repetitious asbestos work is performed shall be at intervals of six (6) months or less, to verify that the work site/operation has remained in the same class/category. Each non-repetitious asbestos removal operation will be sampled at least once to determine the maximum potential exposure. Each asbestos removal operation aboard ship will require at least one air sample to be taken upon completion of the operation to verify that clean up operations were effected and the area is safe for personnel to enter without protective equipment. Environmental monitoring records which represent the maximum potential exposure of workers involved with asbestos removal operations shall be retained for a period of 50 years.

b. Samples shall be collected from within the breathing zone of personnel, on membrane filters of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentration and ceiling limit concentration of asbestos fibers. Filters should be precounted to determine the average background count. Persons "counting" filters shall be judged proficient by successful participation in the NIOSH Proficiency Analytical Testing (PAT) program. Only "phase contrast" microscopes especially "set up" for asbestos counting should be utilized. Persons performing dispersion staining to differentiate asbestos and non-asbestos fibers shall be specifically trained in this technique. Their proficiency shall be verified with standard laboratory quality control techniques approved by the Navy Environmental Health Center (NAVENVIRHLTHCEN). All environmental monitoring records/data etc., shall be retained on personnel exposed to asbestos for a period of 50 years following termination of service/employment.

c. Measurement and monitoring shall be conducted under the technical direction of an industrial hygienist. Sources of industrial hygiene assistance are provided in enclosure (3).

7. Caution Sign and Labels

a. Caution signs shall be provided and displayed at each location where airborne concentrations of asbestos fibers may exceed the permissible exposure concentration. Signs shall be posted at such a distance from such a location so that personnel may read the signs and take necessary steps before entering the area marked by the signs. Signs may be sized to suit the particular occasion. A listing of required protective equipment may be attached to or part of the sign. The following criteria represents the minimum requirements: caution signs shall conform to the general requirements of 20 inch by 14 inch vertical format signs, as specified in 29 CFR 1910.145(d)(4). The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to that specified in this subdivision:

LEGEND	NOTATION
Asbestos	1" Sans Serif, Gothic or Block.
Dust Hazard	3/4" Sans Serif, Gothic or Block.
Avoid Breathing Dust	1/4" Gothic.
Wear Assigned Protective Equipment	1/4" Gothic.
Do Not Remain in Area Unless Your Work Requires It.	1/4" Gothic.
Breathing Asbestos Dust May be Hazardous to Your Health.	14 point Gothic.

Spacing between lines shall be at least equal to the height of the upper of any two lines.

b. Caution labels shall be affixed to containers of raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers if, in the foreseeable use, handling, storage, disposal, processing or transportation of those items, levels of airborne asbestos could be produced which might constitute a threat to worker health. The caution labels shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

CAUTION

Contains Asbestos Fibers

Avoid Creating Dust

Breathing Asbestos Dust May Cause
Serious Bodily Harm

8. Medical Surveillance

a. Preplacement evaluation - All naval personnel, both military and civilian, upon assignment to a position involving exposure to asbestos, as defined in the "Medical Surveillance Action Level" section, shall have a health evaluation. This evaluation shall be performed within 30 days and should include the following:

(1) A comprehensive occupational history, attachment (5), detailing prior exposure to potentially harmful chemical or physical respiratory hazards, particularly asbestos. Any adverse effects related to these exposures must also be recorded. A respiratory history, attachment (5), with emphasis on the presence of respiratory symptoms and smoking must also be recorded.

(2) A physical examination with special emphasis on the chest, particularly the presence of persistent "dry rales" or "crackles" at the lung base.

(3) A 14" by 17" posterior-anterior chest roentgenogram. These films shall be locally screened and interpreted in accordance with current radiological practices. In addition, these films shall also be interpreted in accordance with the ILO-U/C International Classification of Radiographs of Pneumoconiosis - 1971. If local ILO-U/C 1971 interpretation of radiographs is not available, assistance may be obtained from the Navy Environmental Health Center (NAVENVIRHLTHCEN), 3333 Vine Street, Cincinnati Ohio 45220 (Attention CODE 3), AUTOVON: 989-3863 or Commercial: (513)684-3863.

(4) Pulmonary function tests including forced expiratory volume in one second (FEV_1) and forced vital capacity (FVC). Such tests should be performed, calculated, and interpreted in accordance with the Navy Environmental Health Center Technical Manual 77-1, May 1977.

(5) Sputum cytology is recommended for personnel who meet one or more of the following criteria:

(a) 45 years of age or older

(b) 10 or more years of asbestos exposure

(c) regularly smoke one or more cigarettes per day

(6) A judgment of the workers ability to use respiratory protective equipment.

(7) The findings of severe respiratory impairment from any cause, e.g., FEV_1/FVC less than 45% or FVC less than 70% of predicted, or the presence of documented actual or probable pulmonary asbestosis, should be considered disqualifying for initial assignment. Any other abnormalities discovered in the course of the pre-employment evaluation should be investigated to determine if they could substantially increase the risk of asbestos-induced disease.

b. Periodic and Termination-of-Employment Evaluations - A medical evaluation identical to Section 8.a.(3)-(7), pre-employment examination, shall be conducted annually and within 30 days before or after their termination of employment for all personnel occupationally exposed to asbestos fibers. Personnel shall be notified of any abnormalities detected by screening tests (preplacement, periodic, or termination of employment) and the medical record specifically so noted and initialed by physician and patient.

NOTE: If records indicate employee has received an annual physical examination within the past 12 months a termination examination is not required.

c. When an individual is no longer exposed, as defined under the "Medical Surveillance Action Level" section, he or she will continue to be medically monitored if any of the following criteria are met:

(1) regularly smokes one or more cigarettes per day,

(2) 5 years accumulated exposure to asbestos, and

(3) has any asbestos-associated disorder.

d. An individual, not currently exposed, as defined under the "Medical Surveillance Action Level" section, who believes he was exposed in the past, shall complete the Medical Surveillance Questionnaire, attachment 5. Based on the review of attachment 5 the individual may be requested to take a full asbestos physical. If the results warrant the individual will be placed in the Asbestos Medical Surveillance Program. If the results are negative the individual will be recalled in five (5) years for re-examination.

9. Diagnosis of Asbestosis and Related Disorders

a. The diagnosis of "asbestosis" is presumptive with known past exposure to asbestos (the presence of pleural changes or asbestos bodies in the sputum may support or suggest past exposure) and two or more of the following criteria:

(1) Dyspnea (shortness of breath) on exertion,

(2) Persistent basal inspiratory "crackles" or "dry rales",

(3) Diffuse interstitial changes on the chest roentgenogram,

(4) Reduction in vital capacity and diffusion capacity, and

(5) Digital clubbing.

b. In early stages of the disease, dyspnea and roentgenographic changes may not be present and the only abnormalities may consist of a slight reduction in the vital capacity, arterial desaturation with exercise, and end-inspiratory rales. A history of exposure to asbestos is critical to the diagnosis. It is unusual for pulmonary asbestosis to develop with less than 10 years of exposure. Individual's with medical findings suggestive of asbestosis, but not supported by an adequate history of exposure, should have further evaluation by a pulmonary disease specialist to rule out other diagnoses.

c. Workers who have been exposed to asbestos in the past and show abnormal lung changes, e.g., pleual plagues and/or pleual thickening, shall be diagnosed as having an asbestos-related disorder and shall be placed in the medical surveillance program.

10. Medical Records

a. All personnel who are included under the "Medical Surveillance Action Level" shall have the exterior of their Health Records prominently marked "ASBESTOS".

b. Each individual record must include the following identifying information:

(1) Name,

(2) Social Security No,

(3) Date of birth,

(4) Dates of examinations, and

(5) Job titles, job codes, and/or primary and secondary Navy Enlisted Classification Code (NEC).

c. All records of examinations, possible asbestos-related conditions, related x-ray interpretations and all forms and correspondence related to the employee's medical

best copy available

history shall become a permanent part of the Health Record and be retained for a period of 50 years following termination of service/employment. X-ray films shall be retained for a period of five (5) years.

d. The judgement of the occupational health physician concerning the adequacy of the diagnostic information to support the impression of asbestos-related disease shall be entered in the medical record. Lacking definitive criteria the evaluating physician must exercise his best medical judgement on each individual case.

e. Copies of a summary of any examinations, x-ray reports, or special studies in an individuals Health Record or compensation folder shall be made available to a physician of the individual's choice after execution of a proper release of information.

f. Medical records as defined in paragraph 10(b) and (c) above shall be maintained locally pending the establishment of an Asbestos Occupational Exposure Data Bank by BUMED.

11. Education

a. All personnel currently exposed to asbestos, as defined by the "Medical Surveillance Action Level" section and their supervisors shall receive a detailed indoctrination and periodic refresher instruction at least semi-annually.

b. The initial indoctrination shall include all of the following:

(1) Hazards of asbestos,

(2) Safe handling and disposal procedures,

(3) Proper use of protective equipment,

(4) Association of cigarette smoking and asbestos-related disease, and

(5) Procedures for reporting actual or suspected exposure to uncontrolled asbestos.

c. All personnel, including supervisors, not covered under the "Medical Surveillance Action Level" who could incidentally come in contact with asbestos or asbestos-containing materials, shall be informed of the potential risk and proper handling procedures.

12. Outside Contractor

Each contract for work to be performed by an independent contractor, within the United States, which may involve the release of asbestos fibers, shall incorporate the appropriate references and/or specific contract clause or clauses necessary to assure that:

a. the contractor is aware of the potential hazard to his employees and others,

b. the contractor shall take such special precautions (e.g., 29 C.F.R. 1910.1001) as are necessary and appropriate to protect his employees, as well as others, from any physical harm, and

c. the work shall be accomplished without violating the permissible exposure concentration, as discussed in paragraph 1 of this enclosure, and/or the National Emission Standard, as discussed in enclosure (2).

The Chief of Naval Material shall issue appropriate guidance to all activities which contract for services involving a possible asbestos-exposure hazard, including a standard contract clause or clauses and instructions for their use. Appropriate monitoring and enforcement of the contract provisions is required.

Engineering and Work Practice Control Measures

1. Local exhaust ventilation control measures and dust collection systems shall be designed, constructed, installed and maintained in accordance with the American Conference of Governmental Industrial Hygienists (ACGIH) Ventilation Manual or the American National Standard, Fundamentals Governing the Design and Operation of Local Exhaust Systems; ANSI Z9.2-1971, available from the American National Standards Institute, 1430 Broadway, New York, New York 10018.

2. All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the permissible exposure concentrations shall be provided with a local exhaust ventilation system.

3. It must be noted that ventilation systems used to control asbestos exposures or emissions cannot be directly exhausted to the workroom or atmosphere. The use of High Efficiency Particulate Air (HEPA) filters with prefilters, or other collection systems approved by the cognizant industrial hygienist, is required to prevent the inadvertent production of an exposure hazard (see enclosure (2)).

4. Exhaust filtration systems must be meticulously maintained to prevent performance degradation of the ventilation system as a whole. Such maintenance work must be done in accordance with the provisions of the basic instruction.

5. To the extent feasible, local exhaust ventilation connected to HEPA or other approved filters should be provided at the point of airborne fiber generation. Capture velocities must be high enough to entrain generated fibers under the specific environmental conditions. Duct transport velocities must be high enough to prevent accumulation of fibers in the duct and clean-out ports should be provided where necessary. Specific equipment design parameters (e.g., requirements for static pressure monitors), as well as protective clothing/respiratory protection and system servicing procedures for each operation must be provided/approved by the cognizant industrial hygienist.

6. Procedures shall be established that minimize the accumulation of waste dust or scrap materials. Specific procedures for containment of dust and handling of contained materials shall be instituted so that the possibility of secondary air contamination is minimized. Cleanup procedures based on wetting the material and use of vacuum cleaning for removal of debris shall be employed whenever possible.

7. Personnel engaged in the removal ("rip-out"), or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with a type "C" continuous flow or pressure demand, supplied air respirator and protective clothing in accordance with attachments (3) and (4). Care shall be taken to minimize the effects of meteorologic conditions, such as wind, to control the spread/increase of airborne concentrations of asbestos. Enclosures or temporary curtains shall be used to control the amount and velocity of air moving through the workplace, whenever possible.

8. Asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing, consigned for disposal, which may produce in any reasonably foreseeable use, handling, storage, processing, disposal, or transportation, airborne concentrations of asbestos fibers in excess of the permissible exposure concentration shall be collected and disposed of in sealed impermeable bags, or other closed, impermeable containers and labeled in accordance with paragraph 7.b. of enclosure (1). Transportation of asbestos waste including piping or other debris resulting from demolition shall be conducted in a manner that does not release airborne asbestos fibers.

Disposal Procedures

1. Asbestos materials, properly contained and disposed of in an approved sanitary landfill that is operated in accordance with 40 CFR 241 guidelines, should not pose a hazard to human health or the environment.* The landfill operator must maintain daily compacted soil cover. Specific locations within landfills used for the disposal of asbestos materials should be recorded by the landfill operators with a copy of the report retained by the cognizant naval facility for future reference. This practice should reduce the possibility of future unearthing and rupturing of disposal containers.

2. In preparation for disposal, asbestos wastes must be adequately wetted, when appropriate, prior to bagging in heavy-duty plastic bags or other suitable impermeable containers. All bags or containers must be provided with standard asbestos "caution labels". Asbestos waste containers such as bags, trash cans, dumpsters, etc., shall be distinctively color coded to assure easy recognition. Dumpsters shall be labeled "ASBESTOS WASTE ONLY" or otherwise marked in accordance with paragraph 7.b. of enclosure (1). Care must be exercised in order to prevent bags and other containers from rupturing when being moved to a dumpster or other suitable vehicle for transport to a proper disposal site.

3. For guidance concerning specific health-related precautions to be used for specific operations, consult the cognizant industrial hygienist (see enclosure (3)). For guidance concerning specific environmental questions, or applicable local regulations, consult the Hazardous Waste Disposal Guide, NESO 20.2-011 of December 1976, Part IV; Directory of Contacts for Disposal Assistance.

*NOTE: Some states may require large quantities of asbestos materials to be disposed of in specially designated landfills. Therefore, consult appropriate state regulations prior to disposal.

Respiratory Protection

1. Engineering control measures shall be employed to control and contain airborne asbestos fibers to the lowest feasible level. Compliance with permissible exposure limits shall not be achieved by the use of respirators except under the following conditions:

a. during the time period necessary to commence engineering control measures,

b. in work situations in which the control methods prescribed are not technically feasible, or feasible to an extent insufficient to reduce the airborne concentration of asbestos fibers below the maximum permissible limit, and

c. during emergencies.

2. A respirator program shall be established as described in the requirements of the American National Standards, Practices for Respiratory Protection, ANSI Z88.2-1969 (available from the American National Standards Institute, 1430 Broadway, New York, New York 10018), as embodied in 29 CFR 1910.134.

3. Where a respirator is required, it shall be selected from those approved for protection against exposure to asbestos by the Mining Enforcement and Safety Administration (MESA), or Mine Safety and Health Administration (MSHA), or the National Institute for Occupational Safety and Health (NIOSH).

4. Reusable or disposable single-use air purifying respirators should be NIOSH/MESA/MSHA approved for protection against pneumoconiosis and fibrosis producing dusts, including asbestos. They shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the permissible exposure concentrations, when the ceiling or the 8-hour time-weighted average concentration of asbestos fibers is reasonably expected to exceed no more than 10 times the limit, based on data obtained in accordance with paragraph 5 of enclosure (1).

5. A full facepiece powered air purifying respirator, or a powered air purifying respirator shall be used to reduce the concentration of airborne asbestos fibers in the respirator below the permissible exposure concentration when the ceiling or the 8-hour time-weighted average concentration of asbestos fibers is reasonably expected to exceed 10 times, but not 100 times, the limit, based on data obtained in accordance with paragraph 5 of enclosure (1).

6. A type "C" continuous flow or pressure-demand, supplied-air respirator shall be used to reduce the concentration of airborne asbestos fibers in the respirator below the permissible exposure limit when the ceiling or 8-hour time-weighted average airborne concentration of asbestos fibers is reasonably expected to exceed 100 times those limits, based on data obtained in accordance with paragraph 5 of enclosure (1).

7. Breathing air and/or sources of breathing air for self-contained breathing apparatus and supplied-air respirators must conform to the requirements found in the following documents: 29 CRF 1910.134(d); Federal Specification BB-A-1034a of 21 June 1968, with Amendment 1 of 15 December 1970; and NAVFACINST 11300.24B of 2 August 1972.

8. A person shall not be assigned to tasks requiring the use of respirators if, based upon his most recent medical examination, an examining physician determines that the person will be unable to function normally wearing a respirator, or that the safety or health of the person or other personnel will be impaired by his use of a respirator.

Personal Protective Clothing/Change Room/ Shower Facility Requirements

1. Personnel engaged in (1) handling of asbestos-containing materials during "ripout" operations, or (2) in situations where emission of airborne fibers in excess of the permissible exposure limits is likely, shall wear the protective clothing listed below (See Note 1).

a. Full-body, one-piece disposable coveralls, (preferably constructed of Tyvek material, or material comparable in weight, strength, and resistance to penetration by asbestos) over cloth coveralls supplied and laundered by the Navy (See Note 2).

b. Hoods (head covering), shall extend beyond the collar of the coverall, completely protecting the neck area (See Note 2). The hood should be Tyvek material, or a comparable substitute. Use of a Tyvek coverall with attached hood is highly desirable.

c. Medium weight rubber gloves, or thin latex/rubber gloves with cotton "over glove" (See Note 2).

d. Slip-resistant plastic shoe covers, or heavy polyethylene shoe covers with slip-resistant soles, or lightweight rubber boots (See Note 2).

e. Safety glasses with side shields or a full-length face shield when full-face respirators are not in use (See Note 2).

2. Change rooms shall be provided as close as practical to the asbestos work areas (See Note 3).

3. Shower facilities shall be located between the "clean" and "dirty" change rooms and each room shall have separate clothing lockers or containers to prevent contamination.

4. Laundering of asbestos contaminated clothing shall be done so as to prevent release of airborne asbestos fibers in excess of the permissible exposure concentration. Contracts governing the laundering of asbestos-contaminated clothing shall specifically require that contractors comply with the

precautions specified in 29 C.F.R. 1910.1001 (d)(4)(iii). Bags of asbestos-contaminated clothing should be transported in sealed impermeable bags or containers to which is affixed the standard "caution label".

NOTE 1: The local industrial hygienist (See enclosure (3)) shall be consulted regarding the adequacy of and requirements for protective clothing.

NOTE 2: The proper use of protective clothing requires that all openings be closed and that garments fit snugly about the neck, wrists, and ankles. Accordingly, the wrist and ankle junctions, as well as the collar opening on the outer disposable coveralls, etc., shall be taped, as necessary, to prevent contamination of skin and underclothing without restricting physical movement.

NOTE 3: Protective clothing removal procedures shall be promulgated to include vacuuming of clothing (before removal) using a vacuum approved by the local industrial hygienist (and while still wearing respirators if required for the task).

MEDICAL SURVEILLANCE QUESTIONNAIRE
OPNAV 6260/1 (7-78) [illegible]

Privacy Act Statement, DD Form 2005, must be provided with this form, unless already a part of the health care record.

DATE OF SUBMISSION:

NAME	RANK/RATE	HOME ADDRESS/MILITARY UNIT	SEX (M/F)	DATE OF BIRTH	CURRENT JOB DESIGNATION

PART I - OCCUPATIONAL HISTORY

INSTRUCTIONS. Please complete the following work history; begin with your present job or military assignment, and list all jobs you have held. Be as specific as possible; if you held more than one job with the same employer, list each job title and activity. Use additional sheets as needed.

COMPANY OR MILITARY UNIT (Name and state where worked)	DATES WORKED		FULL/PART TIME JOB CHECK		JOB TITLE AND WORK ACTIVITIES	POTENTIAL HAZARDS EXPOSED TO		PROTECTIVE EQUIPMENT WORN (Respirator, ear plugs, etc.)
	FROM MO/YR	TO MO/YR	FULL	PART		PHYSICAL (Noise, vibration, etc.)	CHEMICAL (Heavy metals, fumes, solvents, etc.)	

SECONDARY OR PART-TIME JOBS YOU HAVE HELD (Cleaning, farm, etc.)	DATES (MO/YR)	
JOB TITLE	FROM	TO

HOBBIES & ACTIVE SPORTS (Past and present, such as painting, woodworking, scuba diving, etc.)

WORK-RELATED EXPERIENCES, COMMENT ON (Those you feel may have been harmful to your health)

PART III - RESPIRATORY SYMPTOMS

Since your last examination or visit to the doctor, have you experienced any of the following?

SYMPTOM	YES	NO	NOT SURE	SYMPTOM	YES	NO	NOT SURE
a. COUGH				h. EXPECTORATION (PHLEGM)			
b. FEVER				i. STUFFY NOSE			
c. CHILLS				j. EYES BURNING OR WATERING			
d. MUSCLE ACHES				k. THROAT SORE OR BURNING			
e. SHORTNESS OF BREATH				l. LOSS OF APPETITE			
f. CHEST PAINS, ACHING, TIGHTNESS, BURNING				m. WEIGHT LOSS			
g. WHEEZING							
DO YOU SMOKE CIGARETTES, CIGARS OR PIPE?				HOW OLD WERE YOU WHEN YOU BEGAN TO SMOKE CIGARETTES, CIGARS OR PIPE?			

NUMBER OF CIGARETTES, CIGARS OR PIPEFULS SMOKED DAILY (Give best estimate) [illegible]

_____ CIGARETTES/DAY _____ CIGARS/DAY _____ PIPEFULS/DAY

[illegible]

OPNAV [illegible] BACK

NATIONAL EMISSION STANDARD FOR ASBESTOS

1. General

a. Section 112 of reference (d) requires the administrator of the Environmental Protection Agency (EPA) to publish a list of hazardous air pollutants for which national emission standards will be promulgated. Reference (e), promulgated emission standards for three hazardous air pollutants, namely, asbestos, beryllium, and mercury.

b. Technical assistance for air pollution control is available upon request from the Engineering Field Divisions of the Naval Facilities Engineering Command.

c. Care must be taken to assure that measures to meet the emission standards are compatible with occupational health and safety standards contained in enclosure (1) of this instruction package, particularly with regard to collection devices and disposal procedures involved in asbestos fabrication (as in shipyard pipe or lagging shops), installation or removal operations. For additional information contact the industrial hygiene activities listed in enclosure (3).

2. Application of National Emission Standards for Asbestos

a. The National Emission Standards for Asbestos are contained in reference (e).

b. This standard became effective immediately upon publication and principally applies to the manufacturing of asbestos products. It does not include fabrication or repair operations if the operation does not involve the production of asbestos, cloth, cord, wicks, tubing, tape, twine, rope, thread, yarn, roving lap, or other textile material.

c. Demolition or modification of institutional, commercial or industrial buildings (including residential buildings containing 5 or more dwelling units) containing friable asbestos requires at least 20 days prior notice by prescribed format to the Administrator of EPA. Finally, the work must be accomplished in compliance with specific procedures for the removal and handling of friable asbestos coated or covered pipe, duct, boiler, tank, turbine, furnace or structural member.

d. Spray applications of materials containing more than 1% asbestos on a dry weight basis requires at least 20 days notice by prescribed format to the Administrator of EPA, and compliance with emission limitations. Spray application of materials containing 1% or more asbestos is prohibited for buildings, structural members, pipe and conduits.

e. "Rip-out" of asbestos from commissioned ships is not included in the National Emission Standard; however, commissioned ships must comply with Occupational Health and Safety Standards in enclosure (1) of this instruction.

f. Procedures for handling, transportation and disposal of waste asbestos are prescribed in the Standards. Waste asbestos or asbestos contaminated material must be wetted down and placed in impermeable containers prior to transporting for disposal. The containers must be labelled as prescribed in this instruction. The most commonly available disposal method is in a sanitary landfill operated in accordance with the requirements in Chapter 12 of OPNAVINST 6240.3E and state and local permit requirements for sanitary landfills.

INDUSTRIAL HYGIENE TECHNICAL ASSISTANCE DIRECTORY

1. General. Industrial hygiene personnel at BUMED activities are available to provide consultation on occupational health matters, specific assistance in monitoring personnel exposure levels to asbestos and other toxic contaminants and to recommend and evaluate engineering/ventilation controls and personal protective gear required to control personnel exposures to these contaminants.

2. Activities Located in non-BUMED Commands. Request industrial hygiene services from the regional medical center which will provide, or arrange for, the required services. Industrial hygiene services are available in the following centers:

Industrial Hygiene Services

NAVREGMEDCEN	Autovon	Commercial
Bethesda, MD	295-1202	(301)295-1202
Bremerton, WA	439-2729	(206)478-2729
Camp Pendleton, CA	993-3509	(714)725-3509
Charleston, SC	794-6100	(803)743-6100
Corpus Christi, TX	861-3465	(512)939-3465
Jacksonville, FL	942-2841	(904)772-2841
Camp LeJeune, NC	484-2707	(919)451-2707
Long Beach, CA	360-7275	(213)547-8236
New London, CT	241-4613	(202)449-4613
Oakland, CA	253-2458	(707)646-2458
Pearl Harbor, HI	430-0111 X4242	(808)474-4242

Industrial Hygiene Services

NAVREGMEDCEN	Autovon	Commercial
Pensacola, FL	922-3639	(904)452-3639
Philadelphia, PA	443-4751	(215)755-4751
Portsmouth, NH	684-2398	(207)439-1000 X398
Portsmouth, VA	961-3280	(804)393-3280
San Diego, CA	957-3509	(714)225-3506
Subic Bay, RP	844-1101 X4-6995	Local No. 4-6995

3. All other Shore Activities. Request industrial hygiene assistance from the nearest NAVENPVNTMEDU or the Navy Environmental Health Center, 3333 Vine Street, Cincinnati, Ohio, AUTOVON: 989-3863 or Commercial: (513) 684-3863.

4. Forces Afloat. Forces afloat requiring the services of an industrial hygienist, shall request assistance from the nearest Navy Environmental and Preventive Medicine Unit (NAVENPVNTMEDU), as follows:

Unit No.	Location	Autovon	Commercial
2	Norfolk, VA	690-7671	(804)444-7671
5	San Diego, CA	958-1263	(714)235-1261
6	Pearl Harbor, HI	430-0111 Ext.2173	(808)474-2173
7	Naples, Italy	625-1000 Ext.468 or 469	

Enclosure (3)

MEMORANDUM OF UNDERSTANDING
BETWEEN THE
UNITED STATES COAST GUARD,
THE DEPARTMENT OF TRANSPORTATION
AND THE
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION,
THE DEPARTMENT OF LABOR
CONCERNING OCCUPATIONAL SAFETY AND HEALTH ON ARTIFICIAL ISLANDS, INSTALLATIONS AND OTHER DEVICES ON THE OUTER CONTINENTAL SHELF ON THE UNITED STATES

I. PURPOSE - The purpose of this Memorandum of Understanding is to establish procedures to increase consultation and coordination between the United States Coast Guard (USCG) and Occupational Safety and Health Administration (OSHA) with respect to matters affecting the occupational safety and health of personnel working on the Outer Continental Shelf of the United States.

II. DEFINITION - For purposes of the Memorandum, the following definition applies:

Working Conditions on the Outer Continental Shelf of the United States

Working conditions related to activities, including diving, taking place on or from, on the waters adjacent to, or otherwise associated with artificial islands, installations, or other devices permanently or temporarily attached to the seabed and exploring for, developing or producing resources from the Outer Continental Shelf of the United States, or any device (other than ship or vessel) used for the purpose of transporting such resources (43 U.S.C. 1333(a)(1)).

III. AGENCY RESPONSIBILITIES

A. United States Coast Guard

The USCG has authority to promulgate and enforce Safety and Health Regulations for working conditions on the OCS of the United States. In carrying out this responsibility on the OCS the Coast Guard will cooperate with the Occupational Safety and Health Administration to maximize the safety and health protection of employees, avoid duplication of effort, and avoid undue burdens on the maritime industry. The USCG, consistent with its statutory authority:

1. Promulgates regulations and may modify any regulation, interim or final, applying to hazardous working conditions related to activities on the Outer Continental Shelf, and promulgates such other regulations as may be necessary to promote the safety of life and property on the OCS;

2. Promulgates regulations to provide for scheduled onsite inspection, at least once a year, of each facility on the Outer Continental Shelf which is subject to any environmental, safety or health regulation promulgated by the Coast Guard pursuant to the OCS Act*, and also provides for periodic onsite inspection without advance notice to the operator of such facility to assure compliance with such environmental, health or safety regulations;

3. Reviews any allegation from any person of the existence of a violation of a safety or health regulation or other unsafe working condition.

4. Investigates and makes a public report on any death or serious injury occurring as a result of operations conducted pursuant to the OCS Act, and may investigate and report on other injuries, casualties or accidents.

5. Initiates appropriate civil and criminal procedures and other actions to enforce any provision of the OCS Act or any regulation issued under the Act.

B. Occupational Safety and Health Administration

The Occupational Safety and Health Act (OSHAct)** applies with respect to working conditions on Outer Continental Shelf Lands (29 USC 653(a)), but does not apply to working conditions with respect to which the Coast Guard or other Federal agencies exercise statutory authority to prescribe or enforce standards affecting occupational safety and health (29 USC 653(b)(1), Sec. 21(d) of the OCS Act). The Occupational Safety and Health Administration will cooperate with the Coast Guard to maximize the safety and health protection of employees, avoid duplication of effort, and avoid undue burdens on the maritime Industry.

Consistent with its statutory authority under the Occupational Safety and Health Act, OSHA:

1. Prescribes occupational safety and health rules and regulations as necessary to carry out its responsibility under the OSHAct;

2. Inspects and investigates places of employment to insure compliance with any applicable OSHA requirements;

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*"OCS Act" refers to the Outer Continental Shelf Lands Act, as Amended (43 USC 1331 et seq).

**"OSHAct" refers to Public Law 91-596, the Occupational Safety and Health Act of 1970"

3. Responds to allegations of violations of applicable OSHA requirements and makes investigations where there are reasonable grounds to believe that a violation exists.

4. Issues citations and initiates appropriate civil and criminal procedures against employers for violations of applicable OSHA requirements;

IV. PROCEDURES

The two agencies agree, consistent with their statutory obligations, to observe the following procedures in carrying out their responsibilities to promote safe working conditions on the OCS:

A. Development and promulgation of standards

The Coast Guard will develop and promulgate necessary regulations to assure safe and healthful working conditions on the OCS. OSHA will continue to promulgate general standards, which may apply to working conditions on the OCS not being regulated by the Coast Guard. In developing regulations and standards, the two agencies will cooperate to the maximum extent possible. Such cooperation will include, but will not be limited to the following:

1. Information and data availability. For the purposes of identifying work hazards, determining accident or illness causes, developing corrective measures, and assessing the impacts of new or revised regulations or standards, the two agencies will exchange data and study results to the extent permitted by law.

2. Standards research and development projects. The two agencies will jointly participate in standards research and development projects of mutual interest and benefit.

3. Review of existing regulations and standards. The two agencies will jointly review existing USCG and OSHA regulations and standards to help identify hazards that require priority attention in Coast Guard regulations development projects;

4. Exchange of technical expertise. Each agency will provide the other with technical support, where feasible, to assist in the review of particular hazards or the development of regulations.

5. Early notice of rulemaking activities. The Coast Guard will provide for OSHA's review and consultation copies of drafts of advance notices of proposed rulemaking, notices of proposed rulemaking, and final rules, which relate to working conditions on the OCS. Likewise, OSHA will provide for the Coast Guard's review and consultation copies of drafts of advance notices of proposed rulemaking, notices of proposed rulemaking, and final rules, which have application to any working condition on the OCS. Publication of any rule, however, is not contingent upon receipt of comments.

B. **Enforcement of regulations and standards**

While OSHA has statutory responsibilities with respect to workplaces on the OCS, the following provisions have been drafted to emphasize the Coast Guard's increasing role for safety and health on the OCS, as provided under the OCS Lands Act Amendments of 1978 (Pub. L 95-372). Through this Act, Congress expressed the expectation that the Coast Guard would be the principal Federal agency in matters of occupational safety and health on the OCS.

1. **Routine enforcement activities:**

a. The Coast Guard will continue to enforce existing regulations issued under its authority which affect working conditions on the OCS.

b. The Coast Guard will also enforce any new occupational safety and health regulations promulgated under its authority affecting working conditions on the OCS.

c. OSHA remains responsible for enforcing requirements adopted under the OSHAct which apply to working conditions on the OCS for which the Coast Guard or other Federal agencies have not exercised their statutory authority to prescribe or enforce standards affecting occupational safety and health. To minimize any duplication which may result from exercising this responsibility, OSHA will consult with the Coast Guard and seek to minimize the need for OSHA's routine inspection activity.

2. **Investigation of accidents:**

In accordance with regulations issued under its authority, the Coast Guard will investigate deaths, injuries and other casualties or accidents occurring as a result of operations conducted pursuant to the OCS Act. In the course of all such investigations, formal and informal, the Coast Guard will cooperate with OSHA with respect to identifying violations of applicable OSHA regulations related to the casualty or accident. Such cooperation will include: promptly making investigation information available to OSHA; inviting OSHA attendance at Coast Guard formal hearings; and developing lines of inquiry suggested by OSHA. Where a Coast Guard investigation identifies an apparent violation of an applicable OSHA regulation the Coast Guard will promptly notify OSHA and subsequently will cooperate with OSHA with respect to any enforcement action OSHA may undertake. This cooperation may include, but is not limited to, providing transportation, as available; provided, however, OSHA remains responsible for obtaining its own legal right of access to any facility.

3. Investigation of allegations:

The Coast Guard will review any allegation from any person of the existence of a violation of an occupational safety or health regulation or other unsafe working condition on the OCS and take appropriate action under the circumstances. Copies of complaints of occupational safety or health violations on the OCS received by OSHA will be referred to the appropriate Coast Guard district commander for action. The Coast Guard will notify OSHA as promptly as possible of the disposition of allegations forwarded by OSHA.

V. JOINT TRAINING PROGRAM

The two agencies will review the training needs of agency personnel with responsibilities for matters pertaining to safety and health on the OCS, and will develop programs responsive to these needs.

VI. IMPLEMENTATION

The Coast Guard and OSHA shall each designate a representative who shall be responsible for coordinating implementation of the provisions of this Memorandum.

VII. EFFECTIVE DATE

This Memorandum is effective upon signature by the parties. It may be amended at any time by mutual written agreement of the agencies and may be terminated by either agency upon thirty days written notice.

VIII. SAVINGS PROVISION

Nothing in this Memorandum shall be deemed to alter, amend, or affect in any way the statutory authority of the Coast Guard or OSHA.

Signed At Washington, DC this 19th day of December, 1979.

J B Hayes	Eula Bingham
Commandant United States Coast Guard Department of Transportation	Assistant Secretary Occupational Safety and Health Department of Labor

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS: (G-CSP/61)
U.S. COAST GUARD
WASHINGTON, D.C. 20590
PHONE: (202) 426-1883

1

COMDTINST 6260.10 2

24 JUL 1979

3

4

COMMANDANT INSTRUCTION 6260.10

Subj: Asbestos Exposure Control

Ref: (a) COMDTINST M5100.29 Safety and Occupational Health Manual, Chapter 4
(b) U.S. Department of Labor, Occupational Safety and Health Administration, General Industry - Safety and Health Standards OSHA 2206 (29 CFR 1910.1001) (NOTAL)
(c) COMDTINST 6260.2 Technical Guide: Practices for Respiratory Protection
(d) Industrial Ventilation, A Manual of Recommended Practice, American Conference of Governmental Industrial Hygienists, Lansing, Michigan (NOTAL)

1. PURPOSE. This Instruction implements a Coast Guard-wide Asbestos Exposure Control Program in consonance with references (a) and (b).

2. BACKGROUND. Asbestos is a general term used to describe a group of fibrous minerals that do not burn and are excellent thermal insulators. In the past four decades, asbestos has been used for a great number of purposes with two-thirds of all asbestos being used in the construction and shipbuilding industries. Some of the major uses of asbestos are for asbestos cement products, fireproofing, thermal insulation, asbestos cloth, brake lining and various gasket materials. Exposure to airborne asbestos fibers in settings, like the workplace, where they are concentrated, significantly increases the risk of incurring four serious diseases: lung cancer, asbestosis (a progressively debilitating lung disease that impairs breathing and

DISTRIBUTION - SDL No. 109

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NON-STANDARD DISTRIBUTION:

2. (cont'd) increases the risk of serious illness or death from respiratory infections), mesothelioma (a cancer of the linings of the chest and abdominal cavities) and certain gastro-intestinal cancers such as colon cancer. A long latent period of 10-40 years from first asbestos exposure to the development of the disease is frequently noted.

3. DEFINITIONS. For the purposes of this Instruction, the following definitions shall apply:

   a. Asbestos-free material. Any material containing less than 0.1% asbestos by weight.

   b. Occupationally Exposed to Asbestos. Any individual who, because of employment, is required to enter or work an average of three days per calendar quarter, in areas containing airborne concentrations of asbestos at or above the current working environment exposure limit. Also any individual exposed at any time during the calendar year to airborne concentrations of asbestos at or above ten times (10x) the current working environment exposure limit.

   c. Approved Ventilation Filter. A ventilation air filter having a minimum efficiency of 95% for removing particles as small as one micrometer in size.

   d. Approved Respirator. A respirator which is approved for protection against pneumoconiosis and fibrosis producing dusts, including asbestos dust, by the National Institute for Occupational Safety and Health (NIOSH) in accordance with reference (c).

4. POLICY.

   a. Exposure limits. WHERE POSSIBLE, THE EXPOSURE OF UNPROTECTED COAST GUARD PERSONNEL TO AIRBORNE ASBESTOS SHALL BE PREVENTED. IF IT CANNOT BE PREVENTED, IT SHALL BE CONTROLLED BY THE METHODS PRESCRIBED IN ENCLOSURES (1), (2), (3) AND (4), TO THE EXPOSURE LIMITS GIVEN BELOW:

      (1) Working Environments. Unprotected personnel shall not be exposed to airborne asbestos fiber concentrations in excess of 0.5 fibers longer than five micrometers per cubic centimeter of air (0.5 f/cc) averaged over an eight-hour work day. Unprotected personnel shall never be exposed for any length of time to peak airborne

1.05
/
1.0

4. a. (1) (cont'd) asbestos fiber concentrations in excess of five fibers longer than five micrometers per cubic centimeter of air.

(2) Living Environments. Personnel shall not be exposed to airborne asbestos fiber concentrations in excess of 0.1 fibers longer than five micrometers per cubic centimeter of air (0.1 f/cc).

b. Fabrication, Installation and Use Prohibited.

(1) The fabrication, installation or use of new asbestos containing materials is prohibited in the Coast Guard, except where an acceptable substitute does not exist. The following materials do not have acceptable substitutes:

(a) Asbestos brake and clutch linings.

(b) Certain asbestos gasket materials.

(c) The use of other asbestos products for which acceptable substitutes do not exist shall have prior approval of Commandant (G-CSP).

(2) Exposure of personnel to asbestos above the exposure limits during asbestos gasket fabrication and asbestos brake and clutch maintenance work shall be prevented by compliance with the specific work practice controls of enclosure (2).

c. Substitute Materials. Enclosure (5) contains a list of commonly used asbestos materials for which acceptable substitutes are available through the Supply System.

d. Removal or Rip-out Restricted.

(1) NOTE. SCIENTIFIC RESEARCH AND EXPERIENCE HAS SHOWN THAT ASBESTOS REPAIR OPERATIONS AND REMOVAL OR RIP-OUT OPERATIONS CONDUCTED BOTH ABOARD SHIP AND AT SHORE STATIONS, ASBESTOS BRAKE AND CLUTCH MAINTENANCE WORK AND ASBESTOS GASKET FABRICATION WORK WILL MOST LIKELY EXCEED THE WORKING ENVIRONMENT EXPOSURE LIMITS.

(2) Ships: Removal or rip-out of asbestos insulation and other asbestos containing materials shall not be done by ship's force personnel, except during underway casualty repair work which has the approval of the ship's Commanding Officer. Such work shall normally be con-

4. d. (2)(cont'd) ducted at a Coast Guard or contractor shore repair facility by personnel specifically trained in safe removal procedures and the ventilation controls, work practice controls, personal protection controls and environmental monitoring listed in enclosures (1), (2), (3) and (4) shall be followed. Casualty asbestos removal operations shall be directed by a person specifically trained in safe removal procedures. The work practice controls and personal protective controls listed in enclosures (2) and (3) shall be followed.

(3) Shore Stations and Repair Facilities: Removal or rip out of asbestos at Coast Guard shore stations and repair facilities shall be conducted by personnel specifically trained in safe removal procedures. The ventilation controls, work practice controls, personal protective controls and environmental monitoring listed in enclosures (1), (2), (3), and (4) shall be followed.

e. Repair Deteriorated or Damaged Asbestos: Damaged or deteriorated asbestos on Coast Guard ships and shore stations shall be repaired at the earliest opportunity so as to prevent the spread of airborne asbestos contamination. Insulation shall be repaired rather than ripped out or removed unless damage is severe, or unless the insulation has become ineffective. Repairs shall be directed by a person specifically trained in safe repair procedures. The ventilation controls, work practice controls, personnel protective controls and environmental monitoring listed in enclosures (1), (2), (3) and (4) shall be followed.

f. Asbestos Exposure Control Training. Enclosure (6) contains information regarding the availability of training in Asbestos Exposure Control Procedures.

g. Identification.

(1) Asbestos containing material is believed to have been installed on all classes of vessels and on most shore facilities to some degree. Enclosure (5) contains a list of commonly encountered asbestos containing material. Since visual recognition is unreliable, all suspect material shall be considered to be asbestos containing unless known to be otherwise. Suspect materials that are damaged, deteriorated or scheduled for removal, can be analyzed at

4. g. (1) (cont'd) a chemical laboratory using high x-ray diffraction techniques to determine the presence of asbestos prior to repair/rebuilding work.

(2) Following the removal or rip-out of asbestos thermal insulation, the replacement material shall be identified as "asbestos free" by the application of a red undercoat sealer (enclosure (2)). During subsequent rip-out or repair, the ship or repair facility will be able to determine if asbestos or asbestos free insulation is installed by scraping through the exterior paint to determine if a red undercoat is present.

h. Medical Monitoring. Personnel occupationally exposed to asbestos shall be medically monitored.

5. ACTION.

a. District commanders and commanding officers of Headquarters units and the Commander, Coast Guard Activities Europe, shall:

(1) Insure that the policy requirements of this instruction regarding ventilation, work practices, personal protection, environmental monitoring and training are implemented.

(2) Insure that each unit involved in asbestos rip-out or repair work has the required protective equipment available and that such work is conducted under the direct supervision of a person who is trained in asbestos control procedures.

(3) Submit one copy of all asbestos environmental monitoring results together with a brief description of the operation performed and cost of removal/repairs to Commandant (G-CSP).

(4) Insure that the required contract specifications for asbestos work are in compliance with the policy stated in paragraph 4 above.

b. Commanding Officers of vessels shall:

(1) Insure that the policy requirements of this instruction regarding work practices, and personal protection are implemented.

5. b. (2) Insure that at least one crew member has been trained in asbestos control procedures.

(3) Insure that the required protective equipment is available.

JPStewart

J. P. STEWART
Chief of Staff

Encl: (1) Asbestos Ventilation Controls for Working Environments
(2) Asbestos Work Practice Controls
(3) Asbestos Personal Protective Controls for Working Environments
(4) Asbestos Environmental Monitoring
(5) Frequently Encountered Asbestos Containing Materials
(6) Asbestos Exposure Control Training
(7) Asbestos Protective Equipment List

ENCL. (1) to COMDTINST 6260.10

24 JUL 1979

ASBESTOS VENTILATION CONTROLS FOR WORKING ENVIRONMENTS

1. General Ventilation. All general ventilation systems in areas where asbestos rip-out, removal, or repair operations will be conducted, shall be secured prior to the commencement of operations and shall not be restarted until after clean-up operations have been completed. If necessary, temporary general exhaust ventilation to reduce airborne asbestos concentrations can be provided to these areas by exhausting the air through approved ventilation air filters.

2. Local Exhaust Ventilation. Power operated tools used in asbestos work operations shall be provided with a local exhaust ventilation system. Local exhaust ventilation shall also be provided at the point of airborne fiber generation. All local exhaust ventilation shall exhaust through approved ventilation air filters.

3. Design, Construction and Operation. All asbestos ventilation systems shall be designed, constructed and operated in accordance with criteria specified in reference (d). A routine periodic testing and maintenance schedule shall be conducted on all such equipment to assure system performance in accordance with reference (a).

GUIDELINES FOR CONTROL OF
ASBESTOS FIBER HAZARDS
IN THE NATIONAL DEFENSE RESERVE FLEET

PURPOSE: To set forth policy and procedures for the control of employee exposure to asbestos in the National Defense Reserve Fleet (NDRF) during ship preservation and maintenance operations.

INTRODUCTION: Asbestos is the general term applied to a wide range of naturally occurring mineral silicates which can be separated into fibers. While this material has been known for several centuries, it was not until the start of the 20th Century, when it began to be employed as an insulating material for steam engines, that it was used to any appreciable amount.

Asbestos fibers are non-combustible, have good thermal and electrical insulating properties, resist chemicals fairly well, and have high tensile strength. They may be packed, woven, or sprayed. In view of its durability, strength, flexibility and wear-resistance, asbestos has thousands of valuable, wide-spread applications. Unfortunately, asbestos fibers, even in low concentrations, are determined to be carcinogenic, having been found to cause fibrosis and malignancies of the lungs and other organs. Also, asbestos has a potent cocarcinogen effect with cigarette smoking in carcinoma of the lungs. Asbestos fibers released into the air by any means are a potential hazard since, depending upon their size and the strength of the air currents, spaces adjacent to, and at some distance removed from the release point may become contaminated. The potential for continued exposure to asbestos fibers remains unless proper clean-up or housekeeping procedures are followed.

(2)

This means that asbestos material must not only be properly cleaned up, but placed in adequately sealed bags and removed to an Environmental Protection Agency (EPA)-approved disposal area.

PRIMARY SOURCES OF EXPOSURE: For those working on ships in the NDRF there are three primary, potential sources of exposure to asbestos when it is disturbed and rendered airborne. They are:

1. From broken and deteriorating insulation on main and auxiliary machinery, steam and hot water lines, boilers, valves, electric wiring, diesel exhaust systems, etc.
2. From the breaking of such insulation as the result of such operations as preserving, working on, overhauling, repairing and/or removal of valves, pipe lines, boilers, electric wiring, associated components, etc.
3. From asbestos insulating material stored aboard ships that was intended for use in making repairs to existing facilities.

Appropriate caution signs, as shown in the attachments, will be posted in areas where asbestos is being repaired, removed, ripped out, or stored. Access to such areas is to be restricted to persons whose work absolutely requires their presence. Such caution signs shall be posted at sufficient distances and locations to permit employee compliance before actually entering the work area. Appropriate caution labels, as shown in the attachments, shall be placed on all containers of asbestos materials, mixtures, scrap, waste and debris.

(3)

ASBESTOS DUST CONTROL PROCEDURES:

1. Repair of broken, deteriorated, or damaged insulation

Where the outer covering of existing insulation is broken, deteriorated, or damaged leaving exposed areas and/or ends in place, repairs shall be made. Such areas shall be sealed off by using pressure sensitive tape and/or plastic covering held in place by pressure sensitive tape. Under no circumstances are asbestos-containing materials of any kind to be used in making replacements or repairs. Only the minimum number of employees absolutely necessary to accomplish this work shall be allowed in the working space where such repair work is being performed. These employees shall be provided with asbestos dust (filter type) respirators, which are approved by the National Institute of Occupational Safety and Health (NIOSH) or the Bureau of Mines. This type of respirator can be used when vacuuming, taping, or performing other operations directed at containing minor rips and tears, or working in areas where airborne asbestos dust may be generated. At such times as asbestos repair work is being performed, no other work and no other employees shall be scheduled in the area.

2. Removal or "Rip-Out" of Asbestos Insulation Material

The dry removal of asbestos insulation is not recommended and requires specific EPA approval. Therefore, the wet removal or "rip-out" of asbestos insulating material shall be the method used in the NDRF. Prior to commencing removal or rip-out of asbestos insulation from valves, pipe lines, boilers, etc., the material shall be thoroughly wet down to reduce the amount of asbestos fibers released into the atmosphere. Water penetration is slow, often incomplete, and produces bothersome run-off. Water penetration can be significantly improved by using a wetting agent, such as is used by fire departments. The use of such an agent will reduce the amount of water required as well as the safety and clean-up problems caused by excessive run-off. Sources of such wetting agents are as follows:

Aquatrols Corp. of America
1400 Suckle Highway
Pennsauken, N.J. 08110

Leffingwell Chemical Co.
Box 188
Brea, Calif. 92921

Occidental Chemical Co.
Institutional Division
Box 198
Lathrop, Calif. 95330

Rohm and Haas Co.
Ag. Chemical Dept.
Independence Mall
W. Philadelphia, Pa. 19105

Target Chemical Co.
1280 N. 10th St.
San Jose, Calif. 95112

Thompson-Hayward Chemical Co.
Box 2383
Kansas City, Kans. 66110

Vineland Chemical Co.
Box 745
Vineland, N.J. 08360

NOTE: The inclusion of this information should not be construed as a product endorsement by the EPA or the Maritime Administration (MarAd).

Within the asbestos insulation removal areas in various ship spaces, as posted by caution signs, air circulating ventilation units must be diminished or secured to prevent dispersal of dust fibers into surrounding atmospheres, work areas, or compartments.

Prior to wetting down, drop cloths, curtains, portable partitions, or other enclosures, shall be used around areas where asbestos removal operations are scheduled to take place. In addition, disposable plastic bags shall be kept at the removal site for the containment and disposal of scrap asbestos. Caution tags or labels shall be affixed to bags containing asbestos material. (See "Clean Up and Disposal Methods".)

No power driven tools of any type shall be used in the removal of asbestos material, so as to minimize dispersal of asbestos fibers into the atmosphere. Only manually operated tools, such as knives or tin snips shall be employed for this purpose.

Exceptionally good housekeeping practices must be followed during asbestos removal operations. At periodic intervals, when determined by the supervisor, vacuum cleaning of the overall work area for timely clean up of residual dust fibers will greatly control dispersal of asbestos dust fibers beyond the immediate area of containment. BROOM SWEEPING OF ASBESTOS INSULATION SCRAP OR DEBRIS IS EXPRESSLY FORBIDDEN. Scrap asbestos materials shall be wetted, where possible, and placed immediately in polyethylene plastic bags. Appropriate caution tags shall be attached, and the bags sealed for disposal, and placed in a specially designated asbestos disposal area.

Cross-fold drop cloths at time of removal from work site so as to contain any dust fibers within the folded cloths. Folded cloths are also to be deposited and disposed of in plastic bags. Approved industrial-type vacuum cleaners with

NIOSH approved filters and labels shall be used to clean up dust and scrap. During such cleaning operations, the vacuum cleaner operator shall wear a NIOSH approved dust respirator and full protective clothing

NIOSH approved personal protective equipment and clothing shall be worn by any employee involved in asbestos removal work. The Fleet First Aid and Safety Assistant and supervisors will insure that such approved equipment is available, properly used and maintained.

3. Removal or Isolation of Spare Asbestos Insulating Material

Asbestos insulation material, intended for use in making repairs, may be found stored in various areas in and adjacent to machinery spaces. All such material shall be treated as scrap and be disposed of immediately in accordance with the section of this guideline entitled "CLEAN-UP AND DISPOSAL METHODS".

Personnel assigned to this operation shall use NIOSH approved personal protective equipment and clothing.

CLEAN-UP AND DISPOSAL METHODS

1. Scrap and Debris

All insulation materials are to be positively disposed of in impermeable plastic bags (6-mils or heavier) which will be provided at the work site for this purpose. During the progress of removal or "rip-out", the scrap pieces should be placed in the bags immediately after removal from piping, ducts, boilers, etc., instead of placing the pieces down where they may release dust fibers into the atmosphere.

(7)

2. Drop Cloths

Cross-fold drop cloths at time of removal from the work site so as to contain any dust fibers within the folded cloths. Folded cloths are also to be disposed of in plastic bags.

3. Sealing and Labeling of Plastic Bags

Allow enough room at the top of the plastic bags that are filled with asbestos scrap so that the bags may be effectively sealed closed. Sealing may be accomplished by twisting the neck of the bag and then applying the attaching wire of a caution tag provided for each bag. The wire may be twisted to seal the neck of the bag shut. Each plastic bag containing asbestos scrap material and debris must be affixed with a caution tag which appropriately labels the contents of the bag to conform to Federal and State safety and health regulations.

4. Removal and Temporary Storage of Bags

The plastic bags containing asbestos material scrap and debris from "rip-out" or other removal work which have been properly sealed closed against leakage and also properly labeled with caution tags are to be carefully off-loaded from ships to shore in a suitable protective container. Care must be taken in handling bags and containers so as not to rupture the seal or puncture the bags. The containers, with loads of sealed plastic bags are to be transported to a designated temporary storage area where the plastic bags are to be loaded into a larger protective container, or containers, marked "asbestos scrap only". Loading into the large containers from the small containers shall be done manually (do not dump bags from the small containers) so as to prevent breakage of plastic bags, resulting in dispersal of dust fibers into the atmosphere.

5. Disposal of Asbestos Scrap and Debris

The Fleet First Aid and Safety Assistant shall coordinate the transporting of loads of sealed, labeled plastic bags containing asbestos scrap materials from the temporary storage site to the EPA-approved landfill dump site for appropriate disposal. A letter of delivery, in duplicate as suggested in the attachment, is to be prepared and presented to the approved landfill dump site location. The second copy of the letter of delivery is to be receipted by EPA dump site personnel. This receipted copy is to be retained by the Fleet First Aid and Safety Assistant as a record of disposal.

PERSONAL PROTECTIVE EQUIPMENT

1. Respirators

a. Each employee must wear an approved dust filter type respirator when the employee is required to work within a posted asbestos hazard area.

b. Dust filter types of respirators are to be approved by NIOSH, the Bureau of Mines, or the MarAd Safety Officer for wear in asbestos dust hazard areas. These approved filter type respirators are available from the Fleet First Aid and Safety Assistant, on request.

c. Respirators are to be tested on each occasion prior to entry into the dust hazard areas for proper function and proper fit around the employee's breathing zone (nose and mouth). Training of employees as to how to properly fit their respirators shall be conducted by supervisors. The Fleet First Aid and Safety Assistant is to be consulted for assistance in this training.

d. Cartridge filters on reuseable respirators shall be changed at least once daily. Circumstances of use may require that they be changed more frequently.

2. Eye and Head Protection

a. Safety goggles, or safety glasses with side shields, are to be worn at all times within asbestos dust hazard areas posted with caution signs.

b. Face Shields should be worn by employees performing actual removal or "rip-out" work, in addition to their eye protection. Other employees in "rip out" work vicinity are considered to be adequately protected with goggles only.

c. Hard hats must be worn at all times within asbestos dust hazard areas.

3. Protective Clothing and Gloves

a. Disposable coveralls, with disposable head hood, shall be worn by all employees performing removal or "rip out" work or in the immediate vicinity.

b. Vinyl coated work gloves shall also be worn when performing removal or "rip out" work. This type glove is available from the Fleet First Aid and Safety Assistant.

EMPLOYEE PERSONAL HYGIENE

1. Supervisors shall advise their employees that personal cleanliness habits are vital to avoiding the effects of asbestos dust fibers.

2. In addition to wearing the prescribed personal protective equipment, all employees who may have been exposed to asbestos dust fibers becoming lodged in their work clothing should:

a. Change clothes at the end of their work shift, taking care to place dirty clothing in a separate bag until clothing is laundered. Such clothing should be laundered separately and handling should be kept to a minimum before washing.

b. Take a shower before leaving at the end of their work shift to rinse away any residual dust that may be on their body. Wash their hair.

c. Always thoroughly wash their hands at meal time, during their work shift.

d. Refrain from smoking until after changing out of work clothes and washing up. Smoking during actual time within asbestos dust hazard area is absolutely prohibited.

GENERAL INSTRUCTIONS

These guidelines are not intended, nor is it possible for them, to be all inclusive. Prior to starting work, supervisors are to inspect work area for hazardous conditions. Fleet management and supervisors must be constantly alert to all potentially hazardous conditions, including those involving asbestos. Once such conditions are identified, the proper percautionary measures can be taken and employees provided with effective personal protective equipment and tools.

Supervisors shall be responsible for assuring that all employees assigned to potential asbestos exposure areas are provided with personal protective equipment and clothing, and are instructed in its proper use. Any employee who fails to comply with the protective equipment and clothing requirements when in these areas shall be subject to disciplinary action. Every effort should, however, be made to keep asbestos work to an absolute minimum.

The Fleet Superintendent is responsible for insuring that these guidelines, and any subsequent directives concerning this subject, are followed by all Fleet employees. He will also insure that all visitors to the NDRF, whether they are employees of MarAd, other Governmental agencies, private industry, etc., follow proper procedures when entering potential asbestos hazard areas.

Supplemental instructions concerning this subject may be issued by the Fleet Superintendent to meet local conditions.

(Sample Receipt)

Date: ____________

MEMORANDUM

From: EPA Dump Site, ___(location)_______

To: National Defense Reserve Fleet, ____(location)_______

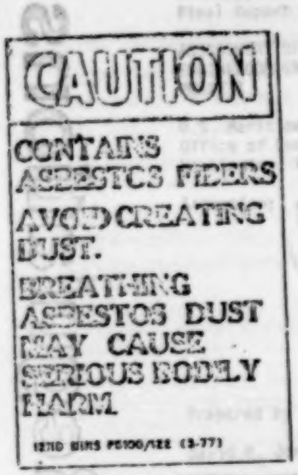
Subj: Receipt for Delivery of Asbestos Scrap Materials

Receipt of ________ bags of asbestos scrap materials from the Maritime Administration National Defense Reserve Fleet, ___(location)_________, is hereby acknowledged.

Name ____________

Title ____________

SAMPLES OF SIGNS AND TAGS



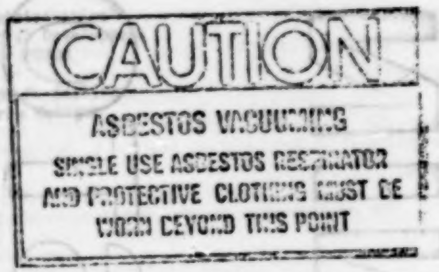
CAUTION

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST.

BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM.

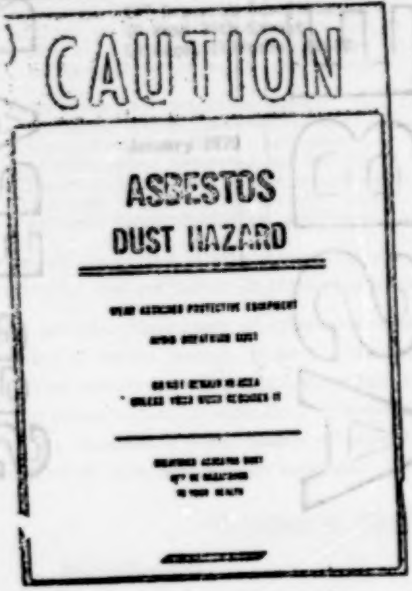
1210 SIGNS PS100/122 (3-77)



CAUTION

ASBESTOS VACUUMING

SINGLE USE ASBESTOS RESPIRATOR AND PROTECTIVE CLOTHING MUST BE WORN BEYOND THIS POINT



CAUTION

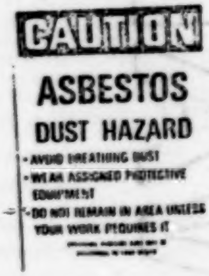
ASBESTOS DUST HAZARD

WEAR ASSIGNED PROTECTIVE EQUIPMENT

AVOID BREATHING DUST

DO NOT REMAIN IN AREA UNLESS YOUR WORK REQUIRES IT

BREATHING ASBESTOS DUST MAY BE HAZARDOUS TO YOUR HEALTH



CAUTION

ASBESTOS DUST HAZARD

- AVOID BREATHING DUST
- WEAR ASSIGNED PROTECTIVE EQUIPMENT
- DO NOT REMAIN IN AREA UNLESS YOUR WORK REQUIRES IT

WARNING

……

ASBESTOS

See EPA Regulations

Contract No. 5-38072
Final Report IITRI Project No. J6449C01

ASSESSMENT OF ASBESTOS CONCENTRATIONS IN THE ENGINEROOM ENVIRONMENT OF MARINE VESSELS, PHASE I

U.S. Maritime Administration
Office of Commercial Development
Washington, D. C. 20230

Attention: Joseph H. Seelinger
Program Manager

Prepared by

David R. Jones

IIT Research Institute
10 West 35th Street
Chicago, Illinois 60616

January 1979

FOREWORD

This program was conducted for the U.S. Maritime Administration, Office of Commercial Development under Contract 5-38072. This is the final report on Mod #6 to the contract covering the period from September 1, 1978 through December 1, 1978.

Joseph H. Seelinger served as Project Officer for the U.S. Maritime Administration.

The Project Leader for IITRI was David R. Jones. John Stockham provided administrative supervision, and Ms. T. Philippi also contributed to the program.

The project data are recorded in Logbooks C24260 and C24314.

Prepared by,

IIT RESEARCH INSTITUTE

David R Jones

David R. Jones
Associate Engineer
Fine Particles Research

Approved by

John D. Stockham

John D. Stockham
Science Advisor
Manager
Fine Particles Research

DRJ:pc

SUMMARY

ASSESSMENT OF ASBESTOS CONCENTRATIONS IN THE ENGINEROOM ENVIRONMENT OF MARINE VESSELS, PHASE I

Large quantities of asbestos, a group of naturally occurring fiberous minerals, have been used in the construction of ships, especially since the World War II shipbuilding boom. Recent knowledge of airborne asbestos fibers involvement in asbestosis and mesothelioma as a primary causal agent and its contributory effect in lung cancer has been of concern to many groups. The primary governmental agencies charged with control of asbestos emissions and with the health effects of asbestos are:

- Occupational Safety and Health Administration. This group is responsible for promulgating and enforcing exposure of workers in the workplace. It is part of the Department of Labor.
- National Institute for Occupational Safety and Health. This group, part of Health, Education and Welfare, is responsible for providing data on the toxicity and safe exposure limits for chemical and physical agents found in the workplace.
- National Institute of Environmental Health Sciences, also an agency of Health, Education, and Welfare, performs studies on chemical and physical agents emitted into the environment which may have an impact on the population.
- Environmental Protection Agency. This agency is charged with the promulgation and enforcement of emissions from manufacturing sources into the air and water. It is charged with maintaining and/or improving the quality of the environment. Several other agencies have groups which work on asbestos diseases, including the National Institutes of Health, the National Cancer Institute, and several interagency committees.

Two additional groups with a specific interest are the U.S. Maritime Administration and the Marine Engineers Benevolent Association.

The program, "Assessment of Asbestos Concentrations in the Engineroom Environment of Marine Vessels, Phase I", had two primary objectives: first, to establish whether standard sampling methods and equipment are practical to study the concentration of asbestos in the engineroom of ships, and second, to plan and recommend a study capable of generating the data needed to assess the exposure of ship personnel to asbestos.

The first objective was achieved by sampling aboard three ships, two in port, and a third on a coastal trip. Standard sampling equipment used for industrial particulate matter surveys performed well; and the samples were analyzed for fibers using a standard analytical procedure. The results of the analysis, when computed on the basis of the number of fibers present in one cubic centimeter of air, were compared to the standards issued by the Occupational Safety and Health Administration (OSHA) and its research arm, the National Institute for Occupational Safety and Health (NIOSH). The comparison showed that no violations of current OSHA workplace standards (2 fibers/cc) were found, but levels of asbestos above the most recent NIOSH recommended standard of 0.1 fibers/cc were found.(2,3)

In light of the apparent occurrence of asbestos related respiratory problems, a program to assess the exposure of ship personnel to asbestos is recommended. The program includes a method for the random selection of ships using statistical techniques to provide a balanced selection from a cross-classification by destination and class of ship. Such a selection will provide coverage of variations in ship maintenance policies, age, sea conditions, and time of year as well as provide global coverage. The proposed sampling program will generate a large number of samples. Samples selected on the basis of engineroom, weather, and sea conditions will be analyzed by microscopy. The plan will restrict the number of samples analyzed to 25-30% of the total number of samples collected. Approximately 6,000 samples will be collected.

The personnel required to collect the samples will be recruited from three sources:

- Merchant Marine Academy Cadets
- MEBA-1 Cadets
- Volunteer engineering officers

The plan recommends use of Cadets from both the Merchant Marine Academy and the MEBA-1 program. The reasons are:

- Recruitment of volunteers is much simpler through the training institutions than seeking individual working engineering officers.
- Group training is feasible for each of these personnel sources.

Sample collection will be designed to require minimal effort and time for the volunteers. Commercial equipment which will automatically control flow, indicate low flow, and shut-off after a selected time interval is available. Data forms are designed to facilitate record keeping.

The number of ships sampled should be between 40 and 60, with the actual number being determined by close scrutiny of the logistics. Sampling this number of ships will require 10 sampling kits complete with redundant equipment to assure a minimal number of gaps in the record.

The design of the program includes compiling the data into a format compatible with existing data bases on ocean conditions. Coupled with the analysis, extrapolation or computation of exposure levels on modified shipping routes or changes in traffic patterns would be possible. Considerable effort will be spent to identify the primary emission sources and/or high risk tasks. The purpose of this effort will be primarily to recommend simple personnel protection methods, such as the use of throw-away masks, or work rules to remedy high-exposure situations.

Other goals of the program, in addition to measuring and recommending techniques to lower exposure levels, are:

- Detection and measurement of asbestos emissions in living quarters.
- Assessment and measurement of asbestos in reserve fleet ships.

The estimated time for such a project is 24 months; 5 months lead time, 12 months sampling, and 5 months to complete the analysis, and prepare the final report.

ASSESSMENT OF ASBESTOS CONCENTRATIONS IN THE ENGINEROOM ENVIRONMENT OF MARINE VESSELS, PHASE I

1. INTRODUCTION

Asbestos minerals are known to present potential long-term hazards to workers. The incidence of asbestos related diseases in workers in the shipbuilding industry is significantly higher than the general population. There also exists recent evidence that some ship personnel have exhibited symptoms typical of asbestos exposure.(1) This evidence led directly to the Phase I study which included an assessment of sampling methods and equipment for the detection of airborne asbestos aboard ships and a plan for a broad, statistically valid study to assess the exposure of ships personnel to asbestos. The detection and quantification of the asbestos excursion exposure potential also will be assessed and recommendations to reduce the exposure or hazard to ship personnel will be made.

The methods selected will provide data which will allow, within the current state of knowledge of the health effects of asbestos, an accurate assessment of the longterm hazard to ship personnel.

This report describes the results of the Phase I program, together with a detailed description of a recommended second phase.

2. SHIPBOARD SAMPLING

2.1 Objectives

A preliminary sampling study was included as the first step in Phase I. Three objectives were met:

- The feasibility of using standard sampling techniques was determined.
- Familiarization with the general layout and worker traffic patterns in enginerooms was obtained.
- The mechanics of interfacing with the union and shipping lines were established.

During the preliminary study, three ships of U.S. merchant fleet were visited and samples of airborne particulate matter were taken at four fixed locations in the engineroom of each ship.

Since one of the duty personnel was stationed at the main control board, one sampler was always placed in this area as close to the breathing zone of the watch stander as practical. The other three samplers were placed at locations based on the layout and traffic pattern of each engineroom. The samplers were distributed throughout the engineroom, with one sampler located in an inactive area and the other two in more frequently traveled areas.

The samplers used were M.S.A.(R) Model G Portable Pumps. Millipore(R) Aerosol Samplers, fitted with a 0.8 μm pore diameter filters and backed-up with fiberglass filters, were used as collectors. The samplers were equipped with precalibrated flowmeters; and the flow rate adjusted to 2.0 liter per minute (ℓ pm). The flow was monitored during the sample collection period and, if required, adjusted every half hour.

The samples, after being labeled and transported to IITRI, were prepared for fiber counting by optical microscopy. The filters were cleared using a technique recommended by Millipore(R), then the fiber concentration determined using the approved NIOSH technique.(4) In addition to enumerating the fiber longer than 5 μm, those less than 5 μm were also enumerated.

The NIOSH method requires the use of an optical microscope equipped for phase contrast illumination and capable of 400-500X magnification. A Leitz microscope was used at a nominal magnification of 500X. The scale of the Porton Graticle (eyepiece) was calibrated at the time of analysis. Further details of the procedure are contained in the Appendix.

The location of each sampler is provided in Tables 1, 2, and 3. Each sample is represented by a code number which relates the ship and sampling location to the analysis. No specific ships are named, since the limited objectives of this portion of the study were,

- to evaluate methods of sampling
- obtain experience in sampling in the unique environment of a ship's engineroom
- establish the required interface with the industry and union needed for any study
- to establish by sampling and observation possible sources of emissions,

and conclusions regarding overall exposures are point values which have little statistical significance to actual exposure levels.

The fiber counts obtained are listed in Tables 4, 5, and 6. The data to compare against OSHA standards are those listed under the heading of Fibers/cc >5 μm in length. All of the values in the tables are well below the current OSHA standard of 2.0 fibers/cc, but some approach or exceed the revised recommended NIOSH limits of 0.1 fibers/cc which could become a future OSHA Standard.

The methodology used in Phase I presumes all the fibers observed to be asbestos. During Phase II, analyses techniques that will confirm the identity of the fibers will be employed.

2.2 Analysis of Samples

The rules of the Occupational Safety and Health Administration (OSHA) governing the allowable exposure of workers in an occupational situation are divided into two types. The first, called the Time Weighted Average (TWA) exposure limit, is the average concentration over an 8-hour work day. The

Table 1

THE LOCATION OF SAMPLES TAKEN ON SHIP NO. 1

Sample No.	Location
10801	control board area
10802	upper deck slightly aft of the control board
10803	upper deck in a low activity area where the bulk of the spare parts are stored
10804	lower deck near the engine. It could not have been moved closer to the boiler since it would have interfaced with the work.
10805	blank sample

Table 2

THE LOCATION OF SAMPLES TAKEN ON SHIP NO. 2

Sample No.	Location
10601	blank
10602	a head-high rack near the main control board
10603	mounted on a spare parts box on the starboard side of the main room deck
10604	mounted on an elevated catwalk on the lower deck of the engineroom
10605	mounted on a stanchion near the port side boiler about chest high. This area is not in heavy use by the watch standers.

Table 3

THE LOCATION OF SAMPLES TAKEN ON SHIP NO. 3

Sample No.	Location
10101	in a stream of outside air entering the area, near the electrical control board
10102	area between control board area and starboard boiler side - nearer control area
10103	located on the top deck of the engineroom in the entrance area
10104	on the lower deck between the engine and the port boiler
10105	blank

Table 4

ANALYTICAL RESULTS OF SAMPLES TAKEN ABOARD SHIP NO. 1

Sample Number	Total Microscope Fields Viewed	Number of Fibers Counted Fiber Length <5 µm	 >5 µm	 Total	Air Volume Sampled, ℓ	Fiber Concentration, Fibers/cc <5 µm	 >5 µm[1]	 Total
10801	150	0	6	6	690	0.0	0.010	0.010
10802	100	4	16	20	720	0.010	0.039	0.049
10803	90	28	56	84	720	0.076	0.152	0.229
10804	110	31	29	60	720	0.069	0.065	0.134
10805	60	0	0	0	-	0.	0.	0.

[1] OSHA standards limit the Time Weighted Average (TWA) exposure to 2 fibers/cc. greater than 5 µm in length. NIOSH is recommending the standard be reduced to 0.1 fibers/cc.

Table 5

ANALYTICAL RESULTS OF SAMPLES TAKEN ABOARD SHIP NO. 2

Sample Number	Total Microscope Fields Viewed	Number of Fibers Counted, Fiber Length <5 µm	>5 µm	Total	Air Volume Samples, ℓ	Fiber Concentration, Fibers/cc <5 µm	>5 µm[1]	Total
10601	220	0	0	0	0	-	-	-
10602	200	4	9	13	960	.004	.008	.012
10603	255	6	11	17	960	.004	.008	.012
10604	225	5	16	21	960	.004	.013	.017
10605	175	3	9	12	960	.003	.009	.013

[1] OSHA standards limit the Time Weighted Average (TWA) exposure to 2 fibers/cc. greater than 5 µm in length. NIOSH is recommending the standard be reduced to 0.1 fibers/cc.

Table 6

ANALYTICAL RESULTS OF SAMPLES TAKEN ABOARD SHIP NO. 3

Sample Number	Total Microscope Fields Viewed	Number of Fibers Counted Fiber Length <5 µm	>5 µm	Total	Air Volume Samples, ℓ	Fiber Concentration, Fibers/cc <5 µm	>5 µm[1]	Total
10101	217	4	17	21	840	0.004	0.016	0.020
10102	212	3	15	18	840	0.003	0.015	0.018
10103	212	12	20	32	840	0.012	0.020	0.032
10104	200	6	21	27	840	0.006	0.022	0.028
10105	200	0	0	0	-	-	-	-

[1] OSHA standards limit the Time Weighted Average (TWA) exposure to 2 fibers/cc. greater than 5 µm in length. NIOSH is recommending the standard be reduced to 0.1 fibers/cc.

second, called an excursion or ceiling limit, is the maximum concentration value for short term exposures. The time involved in short term ceiling limits is a period of 15 minutes.

The rule currently in force requires a 2.0 fiber/cc TWA with a ceiling limit of 10 fibers/cc. A 1975 new rule reducing the TWA to 0.5 fibers/cc and the ceiling limit to 5.0 fibers/cc has been proposed by OSHA. NIOSH has published a Revised Recommended Asbestos Standard(2) which reduces the limit to 0.1 fibers/cc, and impose ceiling limit of 0.5 fibers/cc.

Thus, the fibers found, which are presumed to be asbestos by the analytical procedure used, would constitute a violation of the NIOSH recommended standard. When a standard is exceeded, a health hazard is presumed. OSHA standards assume a 5-day, 40-hour work week with a 16-hour minimum recovery period between exposures. Ship personnel work a different schedule; thus, the application of OSHA standards to marine vessels should be done with caution and may require modification.

The conditions of sampling are another consideration. Two of the ships were sampled in port, and the third on a smooth overnight coastwise trip. These conditions do not represent the most severe or typical operating conditions which contribute to emission of airborne particles. Sampling under more severe conditions such as:

- tube blowing
- rough weather
- emergency or underway repairs to piping and valves

are part of the recommended long term study.

Several engineers indicated high interest in the project and made offers of cooperation during the current sampling or any later efforts. Comments on the possibility of wearing the personal samplers were elicited. Most responses were negative, especially those from day workers. It would be practical to wear the unit while standing a routine watch, but for someone attempting to work, the sampler would be a burden. The general concensus was that we could not count on the proper unsupervised use of the personal pumps if wearing the pumps was part of the test program.

The following summarizes the results of the preliminary study:

- The normal sampling equipment and analysis methods are acceptable for monitoring asbestos levels in ships.
- Industry and union contact and cooperation is satisfactory.
- Asbestos is present in the engineroom atmosphere.
- Variations in asbestos concentration levels in the ships sampled were observed. The reasons for these variations is not apparent.
- Observations made during the sampling program indicate there are many potential sources of asbestos. Source samples may aid in establishing the relative importance of the sources to airborne asbestos levels.
- Crew members were not receptive to the use of OSHA standard procedures for monitoring occupational exposures.

3. PHASE II PLAN

The final task of Phase I was to prepare a plan for Phase II. The method used to develop the plan was to separate the tasks required to obtain the needed data and to plan each one separately. The logical steps or tasks are:

- Selection of Ships
- Recruitment and Training of Personnel
- Acquisition and Maintenance of Sampling Equipment
- Logistics
- Sampling, Selection, and Analysis
- Data Presentation.

Each of the above tasks will be discussed briefly, with alternatives and a recommendation for each task. The recommendations are not firm, since flexibility in a long range, ambitious study such as Phase II is important to the effective and efficient completion of the program.

A sampling period of one year is suggested to include all seasons in each of the various shipping lanes where sampling is required.

3.1 Selection of Ships

Discussion with the project officer gave three initial criteria for the selection of ships in Phase I:

- asbestos used in ship construction
- east coast operation
- enginerooms crewed by Marine Engineer Beneficial Association, District 1 (MEBA-1).

The second criteria was not operative for all of Phase I, since one ship operating from the Gulf Coast was sampled, and the third criteria arose since MEBA-1 first raised the issue of asbestos exposure in enginerooms.

These criteria will not be used to restrict the specific ships on which sampling equipment is to be operated during Phase II. Two methods are available to establish the restrictions in Phase II. The first is to set any arbitrary standards by negotiating with the interested parties, while the second is to classify all operating ships into a matrix based on destination and a factor of ship design, such as age, length, or cargo carrying capacity. Random selection would then be used on each cell in this matrix to generate the restricted list of ships.

This random preselection would assure that the overall sample would be representative of the current fleet. The distribution of the samplers on particular ships would be influenced by other considerations, such as obtaining a balanced spectrum of operating companies, sampler logistics, and the availability of personnel to operate the samplers. An important consideration will be the inclusion of two reserve fleet ships in the program.

An illustrative comparison based on the limited list of 115 ships used for Phase I follows, beginning with several modes of classification. Similar techniques will be used to select and validate the sample of the entire fleet.

The 115 ships of the population belong to nine major classes:

Class	Number
C3	24
C4	48
C5	13
C6	4
C8	11
C9	6
OB8	2
T6	4
T8	3

Subclasses exist within these major classes and are not treated separately. The number of ships per class varies widely from 2 in class OB8 to 48 in class C4. Cargo vessels in classes C3 through C9 predominate numerically (106 out of 115).

The distribution of the 115 ships according to the 5-year interval in which they were built is:

Year of Construction	Number
1945 - 1949	2
1950 - 1954	9
1955 - 1959	1
1960 - 1964	47
1965 - 1969	28
1970 - 1974	23
1975 -	5

Few of the ships (about 10 percent) were built prior to 1960; and, due to the shorter useful life at the present time, are less significant than the newer ships in determining future and present exposures.

The various lines operating the ships in the population are:

Line	Number
Aries	2
Atlas	1
Chestnut	2
Delta	11
Farrell	15
Lykes	41
Margate	3
Moore-McCormack (including Bulk Transport)	14
Prudential	10
Waterman	16

The number of ships per line again varies widely, from 1 to 41.

Several techniques were used to establish tentative selection matrices using various cross-classifications. The population of 115 vessels is cross-classified by class and age in Table 7, by class and shipping line in Table 8, and by age and shipping line in Table 9. The majority of cells in each matrix are empty, and the number of vessels per non-empty cell varies widely. The matrices in Tables 7, 8, and 9 are not satisfactory for random selection, since there are far too many empty cells.

While not overlooking the possibility that expanding the cross-classification to include all the U.S. flag ships could complete or fill out one of the cross-classifications sufficiently to permit random sampling, another method was tried, using ship class and trade route. A preliminary survey based on ship destinations and arrival dates as published in the Journal of Commerce showed that classification by destination and vessel class would readily provide a nearly complete matrix suitable for use in a balanced random selection scheme. One possible balanced selection for a 15 ship sample is shown in Table 10. A 15 ship sample is the typical size of various subsets that may be important to long-range control of exposures. Thus, the balance or homogeneity of a subset of this size is important.

The steps needed to obtain a representative sample of voyages on which crew exposure to airborne asbestos will be monitored, with primary stratification by vessel class and region visited, are:

1. Specify the population of vessels that will be available for monitoring of voyages, categorized by vessel class, age, line, and routes.
2. Specify the target sample size, i.e., the number of voyages that can be monitored in one year with a reasonable level of effort and that will provide balanced coverage of the primary strata.
3. Construct a complete data acquisition matrix such as partially illustrated by Figure 4.
4. Select duplicate sets of ships by random statistical methods from the cross-classified matrix.

Table 7

CROSS CLASSIFICATION OF VESSELS BY CLASS AND AGE

Year Built	Number of Vessels by Class C3	C4	C5	C6	C8	C9	OB8	T6	T8	Total Number
45-49	--	2	--	--	--	--	--	--	--	2
50-54	--	9	--	--	--	--	--	--	--	9
55-59	--	1	--	--	--	--	--	--	--	1
60-64	18	16	13	--	--	--	--	--	--	47
65-69	6	20	--	2	--	--	--	--	--	28
70-74	--	--	--	2	11	6	2	2	--	23
75-78	--	--	--	--	--	--	--	2	3	5
Total	24	48	13	4	11	6	2	4	3	115

Table 8

CROSS CLASSIFICATION OF VESSELS BY CLASS AND LINE

Line	Number of Vessels by Class C3	C4	C5	C6	C8	C9	OB8	T6	T8	Total Number
Aries	--	--	--	--	--	--	2	--	--	2
Atlas	--	--	--	--	--	--	--	--	1	1
Chestnut	--	--	--	--	--	--	--	--	2	2
Delta	8	--	--	--	--	3	--	--	--	11
Farrell	--	9	--	2	4	--	--	--	--	15
Lykes	13	12	13	--	3	--	--	--	--	41
Margate	--	--	--	--	--	--	--	3	--	3
Moore-McCormack	3	8	--	2	--	--	--	1	--	14
Prudential	--	6	--	--	4	--	--	--	--	10
Waterman	--	13	--	--	--	3	--	--	--	16
Total	24	48	13	4	11	6	2	4	3	115

Table 9

CROSS CLASSIFICATION OF VESSELS BY AGE AND LINE

Line	Number of Vessels by Year Built							Total Number
	45-49	50-54	55-59	60-64	65-69	70-74	75-78	
Aries	--	--	--	--	--	2	--	2
Atlas	--	--	--	--	--	--	1	1
Chestnut	--	--	--	--	--	--	2	2
Delta	--	--	--	3	5	3	--	11
Farrell	--	1	--	6	2	6	--	15
Lykes	--	--	--	25	13	3	--	41
Margate	--	--	--	--	--	2	1	3
Moore-McCormack	--	--	--	10	3	--	1	14
Prudential	--	--	--	1	5	4	--	10
Waterman	2	8	1	2	--	3	--	16
Total	2	9	1	47	28	23	5	115

Table 10

ILLUSTRATIVE DATA ACQUISITION MATRIX WITH OCCUPIED CELLS MARKED BY X's

Region Visited	Class of Vessel								
	Cargo						Tanker		
	C3	C4	C5	C6	C8	C9	OB8	T6	T8
Europe	X			X					X
Near East			X		X			X	
Far East		X				X			
Africa		X			X				
South America	X					X			
U.S. Coast			X	X			X		

After selection of the lists and checks to determine if key subsets were adequate for their specified objectives, the efforts needed to schedule the sample collection would be initiated.

3.3.2 Personnel

The task labeled personnel consists primarily of the location, selection and training of personnel who are adequate, both in number and quality, for the task. This is a key function, since maintaining a daily sampling schedule, documentation, and the primary quality assurance will depend on these people.

This task breaks into three areas quite naturally, and we will discuss each in turn beginning with selection. Ideally, full-time, dedicated staff would be used in such a sampling program. Due to an overall shortage of people qualified for sampling, and to the prohibitive cost of placing personnel in a position where time cannot be effectively shared with another program, it is recommended that this function be performed by people who are at sea in the normal course of events.

Three possible sources of voluntary help have been explored.

- The Merchant Marine Academy Cadets
- MEBA-1 Cadets
- Engineering Officers

Preliminary inquiries indicate that the Merchant Marine Academy Cadets are receptive to the concept of assisting in worthwhile scientific endeavors. A protocol which consists of circulation of preliminary announcements, followed by a seminar with the project leader has been traditional.

One of the requirements is that the actual duties cannot be extremely time consuming or onerous. The cadets, however, are over 100 strong on sea duty, and with a reasonable level of participation, would make a significant contribution to the program.

The cooperation of the MEBA-1 cadets, who are in an apprenticeship program, would be assured by the active support of MEBA-1. We have received assurance, that given sufficient lead time, this would be enthusiastic cooperation. Certainly the motivation of these students would be high, since the majority of them are planning a career aboard ship. The major problem would be the work load, since when the MEBA-1 Cadets are at sea, they fill a regular engineers billet and have all his duties to perform. The same problem exists for the third source of personnel, volunteer engineering officers.

To satisfy these requirements the sampling task will: first, consume minimal time, and second, use judicious selection technique to assure the choice of conscientious, responsible volunteers for the assignments to be made.

Use of the two cadet programs as the prime source of volunteers is planned. When available or needed, working engineers will be used.

3.3 Acquisition and Maintenance of Sampling Equipment

The successful completion of a long term monitoring program will depend on two factors other than the efforts of all the personnel: (1) the reliability of the equipment with respect to continuous operation, and (2) the quality assurance available assuring the integrity of the samples.

To assure ourselves that we have adequate sampling equipment, a mini-survey of several major suppliers of sampling equipment was performed. There are two basic types of flow control used on either personal samplers or low volume area sampling equipment.

- Mechanical
- Electronic

The majority of the manufacturers of personal samplers (Research Appliance Corporation, Mine Safety Appliance, and M.D.A. Scientific) use mechanical flow control which is not self-compensating. One, M.D.A. Scientific, has developed a counter which is capable of providing a record of the total flow, but is not self-adjusting. The costs of the units varies from about $300 to $700 per unit.

There is one personal sampler and one low volume area sampler, whose costs are competitive, using electronic control of the flow rate. These are made by Du Pont and Sierra Instruments respectively. The Sierra Instruments unit is much larger and heavier than the personal samplers, which makes carrying and mounting significantly more difficult. Since we intend to use 3 units per ship this is important when considering the work load for sampling personnel.

The Du Pont personal sampler has two further features of great convenience to a program such as ours, a low flow indicator light, and an automatic shut-off from a pre-selected time interval. The Du Pont sampler would require the design of a modified cover plate to permit access to the switches needed to operate the pump without removal of the cover plate and has the potential disadvantage that it uses a belt drive which may require maintenance. The quality assurance of the automatic control of sample flow and interval plus the low flow indicator outweigh the added cost of the modification needed, since the work load of our volunteer personnel and quality assurance obtained is considerably reduced by automatic shut-off, and a primary check on correct flow is obtained for each sample.

The reliability of any process can be improved by redundancy of equipment. In theory, one sampler could be used per ship and recharged twice per day. In practice, a minimum of two would be used, since each pump would back-up the other in the event of mechanical or battery failure enroute to or from the destination. Due to the importance of completing each sampling initiated, we recommend a sample kit consisting of:

- Three personal samplers and three charging units, two of which are used regularly with a back-up pump always available.

The balance of each kit will consist of a suitcase with storage for the pumps and charging units. There will also be storage for sample holders and a supply of data sheets.

Shipping of the containers will be facilitated by installation of a permanent shipping label on each suitcase. They will be delivered in a box to the appropriate port office.

A sample kit containing three pumps is recommended to allow all sampling operations to be performed with the pump in a fully charged condition. The third pump will also be utilized in sampling the living quarters and to obtain background samples of ambient air in ports.

3.4 Logistics

Logistics envolve the mechanism for delivering sampling equipment, samplers, conducting training sessions and organizing the repair and routine maintenance of the samplers. The need for this task is an outgrowth of Phase I, where we found the published schedules indicating the arrival or departure of a ship are only accurate to plus or minus 1 week. As the date approaches, very close checking is needed to insure the timely arrival or pick-up of needed equipment.

A long-range schedule will be constructed, and IITRI staff, will continuously coordinate the effort to assure maximum use of equipment, and verify the transfer and pick-up of samples. The same staff will be responsible for internal analyses schedules.

Some particular requirements will be the assembly of the sampling kits for each sampling trip. Each pump will be calibrated, and its performance evaluated at severe conditions between trips.

The kits will be sent to the port office where the volunteer is to board the ship. All data sheets, supplies, filters (pre-numbered) and instruction manual will be enclosed. Direct contact with the officers of each ship responsible for assisting in collection of the data will be made by IITRI staff.

A preliminary data sheet design has been completed and is shown in Figure 1.

3.5 Sampling, Selection, and Analysis

As indicated earlier in the report, the concensus of opinion regarding the wearing of personal samplers by the working crew is negative, thus we recommend that the approach to sampling be done on a fixed location basis, near the control panel area. The primary reason for locating the sampler in the immediate control area is that the control area is the primary work area of the engineer on watch.

It is possible, especially when the on-board sampling personnel are working members of the engineroom crew, the samplers may be worn during routine watches and repair on some voyages.

Date__________ Ship__________ Location__________ Sampler__________

Filter No.	Start Time	Interval (hrs)	Location	Low Flow Indicator	Comments

Watch		Engineroom Conditions			Ship			
Start	End	Boiler Operation	Engine RPM	Maintenance/Repairs	Course	Speed	Sea Conditions	Comments
0000	0400							
0400	0800							
↓	↓							

Figure 1. Data sheet for use on board ship

The planned sampling program calls for two (2) samples to be taken each day of the voyage, one during the work day period, and the other during a normal watch, staggering the start of sampling periods by about 12 hours. A total sampling program will produce an extremely large number of samples (6,000 from the enginerooms alone), many of which will be redundant. The program provides for selection of samples for analysis on a rational basis.

The selection of samples for analysis will be done based on both the engineroom log and the ship's log. Critical data will be recorded daily regarding the engineroom conditions and sea conditions. This data will be acquired from the ship's deck and engine log by the sampling personnel.

The most important criteria for selection will be the conditions of operation of the engineroom and the ship. During periods when the ships' operations are routine and reasonably invariant fewer of the collected samples will be analyzed. Other circumstances that would justify a reduction in the number of samples analyzed might be the existence of a significant data base for the set of conditions under which they were collected.

Rapidly changing conditions or the performance of unique maintenance or repairs may be cited as the rationale for analysis of additional samples in a particular time frame.

In addition to the routine optical microscopy described earlier, selected samples will be submitted for electron microscopy (EM). The samples used for EM analysis may be either selected from samples not previously analyzed or more detailed analysis of samples already analyzed by optical methods. In either case, the goal of such EM analysis will be identification of emissions as to material and source. To accomplish this goal, small samples of materials such as: pipe lagging (both replacement stocks and shipyard installed), valve wraps, duct wraps, and high temperature paint will be acquired from each ship. The complete list of materials will be assembled prior to the initiation of sampling, and strenuous efforts will be made to acquire these samples from each ship.

The plan currently anticipates analysis of 20-25% of both the engineroom and living quarters samples. Since we plan to collect approximately 6,000 samples from enginerooms and 2,000 from living quarters, this will result in approximately 2,000 samples for optical microscopy. The estimated number of samples submitted for EM analysis to identify sources and quantify the asbestos fraction of the fibers is 400.

We feel that coordinating the samples with both the engineroom and ships' logs will provide the most effective and efficient determination of emission factors, concentrations at various conditions and identification of particular situations where exposure level is high. The probability of solutions to problems and the reduction or elimination of short-term high level exposures will also be enhanced by this technique. That is, we recommend the use of an arbitrary broad sampling collection coupled with selective analysis to assure assessment of the hazard to ship personnel.

3.6 Data Presentation and Use

The data acquired from the analysis will be presented and compared with current standards. Any published data on health effects will also be included in reports. The data, in terms of fibers/cc, will be tabulated and correlation to various engineroom, sea, course, location, and weather situations will be performed.

It is our understanding that a large body of data is already existant that would permit the estimation of the total number of times ships would experience a particular situation and allow extrapolation of the data to the balance of the fleet or to the future plans for the fleet. One of the tasks in any sampling scheme would be to use a code system for the samples and the conditions which would be compatible with the data bases already available.

Two benefits would be gained. First, the frequency distribution of samples taken, as well as of those analyzed, can be compared to the frequency distribution of the data base and its representativeness verified, and second, the total number of samples can be reduced by this comparison.

We, however, would like to emphasize that the primary goal of the program is the assessment of the exposure of ship personnel to asbestos in the environment of a ship's engineroom and living quarters.

A secondary goal of the program is to detect sources of airborne particulates and suggest remedies to limit exposure.

3.7 Program Summary and Schedule

The recommended program for Phase II is shown in Figure 2. The major tasks and subdivisions are shown, together with the projected schedule for implementation and completion of the tasks.

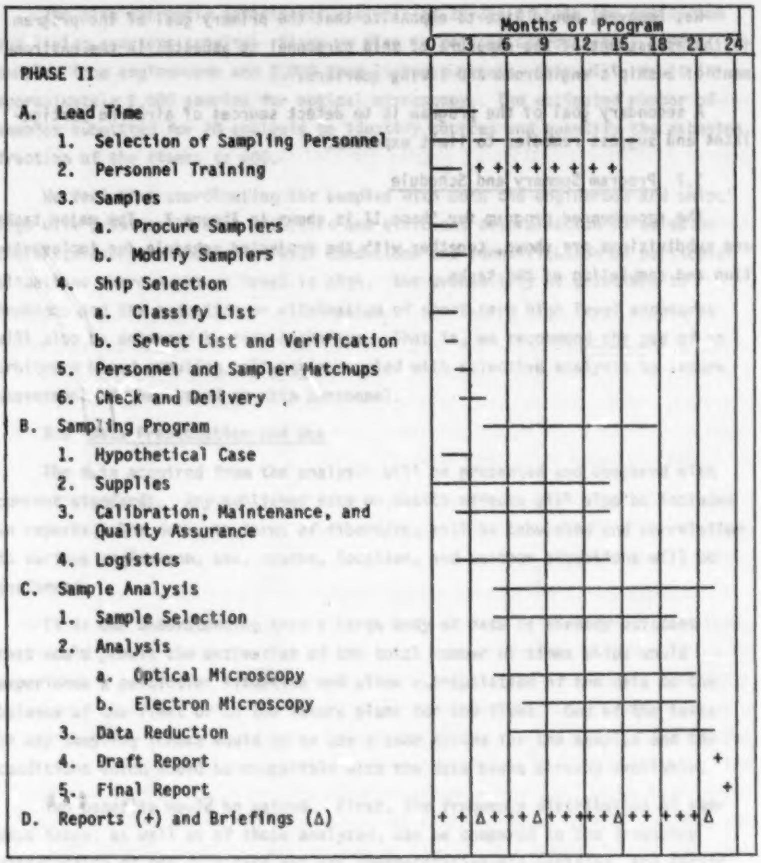


Figure 2. Phase II Tasks and Schedule.

REFERENCES

1. Letter, dated March 10, 1978, from R.J. Blackwell to Dr. E.J. Hinman; w/enclosure.

2. U.S. Department of Labor, Occupational Safety and Health Administration, Standard for Exposure to Asbestos; 29 CFR 1910.1001; May 28, 1975. U.S. Federal Register, 40(103), May 28, 1975.

3. U.S. Department of Health, Education and Welfare; National Institute for Occupational Safety and Health, Revised Recommended Asbestos Standards; 77-169, 1977. Available from Public Health Service, Robert H. Taft Laboratories, 4676 Columbia Parkway, Cinn., OH 45266.

4. Bayer, S.G., R.D. Zumwalde and T.A. Brown, 1969 Equipment and Procedures for Mounting Millipore Filter and Counting Asbestos Fibers by Phase Contrast Microscopy. Available from U.S. Dept. HEW, National Institute for Occupational Safety & Health, 1014 Broadway, Cinn., OH 45202.

5. Samudra, A.V., C.F. Harwood and J.D. Stockham, 1977; Electron Microscopy Measurement of Airborne Asbestos Concentrations; A Provisional Methodology Manual. EPA Document 600/2-77-178, National Technical Information Service, Springfield, VA.

APPENDIX

PROCEDURES FOR SAMPLING AND SAMPLE ANALYSIS

SAMPLING

The sampling procedures used to obtain a sample of respirable dust for analysis of asbestos concentration in air is specified by the National Institute for Occupational Health and Safety. The minimum equipment needed is a personal sampling pump and a filter capable of removing all fibers above 5 μm in length.

The flow rate is specified as 2.0 liters per minute to simulate the average breathing rate. In heavily dust laden atmospheres, a cyclone is used to remove particulates too large to penetrate the respiratory tract and both fractions are weighed. On the first visit to a ship's engineroom, the total dust level was observed (visually) to be low and consequently gravimetric procedures were not employed.

ANALYSIS

The analysis of samples for asbestos is performed using either optical or electron microscopy. The basic method required by OSHA regulations is NIOSH procedure.(3) The optical procedure requires the use of phase contrast optics (interference microscopy) and 4-500X total magnification. The fields are defined by use of a Porton Graticle (eyepiece). The Porton Graticle is calibrated and used to measure the fibers. Electron microscopy procedures are more elaborate and are detailed in an EPA report.(5)

FILTER PREPARATION

Prior to counting, a wedge is cut from the membrane and cleared.(4) The clearing process involves saturating the pores of the membrane. A solvent mixture of 1/3 each n-hexane, dichloroethane and p-dioxane is introduced into the pores by placing the membrane sample onto a thin film of the solvent mixture which is picked up by a wicking action.

The saturated membrane is placed onto a clean microscope slide and exposed to acetone vapors. The membrane then becomes transparent. The addition of a drop of 1.505 refractive index fluid and a cover slip completes the preparation.

COUNTING

As described previously, phase contrast optics are used for counting the fibers observed. Counting rules to assure a valid statistical count are used. Firstly, the fields selected are random locations along a traverse line.

Secondly, specific rules for counting fiber are used. The rules are:

1. All fibers completely contained in the field and over 5 µm in length are counted.
2. Fibers lying partially within the field and over 5 µm in length are counted if they touch the left or top edges of the field and omitted if they only touch or cross the right or bottom edge.
3. A minimum of 20 fields or 100 fibers are counted to assure valid counting statistics.

COMPUTATIONS

The fiber concentration is computed using the following equation:

$$C = \frac{F \quad AF}{n\,A_e \quad V_s}$$

Where

C = Fiber concentration, fibers/com^3

F = Fiber count, fibers

A_e = Area of the Graticle, cm^3

A_f = Area of filter used in sampling, cm^2

V_s = Volume of air sampled, cm^3

Note: V_s = 1000 R x t

Where

R = Sampling rate, l/min

t = Sampling time, min

1000 = ·1000 cm/l

The results of the calculation is a concentration of fibers in number of fibers per cubic centimeter of air. The method has a precision of ± 10°C when performed in one laboratory. This can be enhanced by use of duplicate analysis and/or automatic counting and sizing devices. These more elaborate techniques are not usually needed for monitoring or asbestos concentration.

SECTION 75

INSULATION-LAGGING FOR PIPING AND MACHINERY

1. GENERAL

Where surface temperatures are normally between 52°C (125°F) and 66°C (150°F) and the omission of insulation will not adversely affect operational efficiency, non-metallic lagging only may be applied, where necessary, to protect personnel from contact with hot metal surfaces.

Insulated and fabric-lagged surface temperature shall not exceed 66°C (150°F); metal or metallic type lagging surface temperature should not exceed 52°C (125°F) when in areas susceptible to personnel contact.

Piping and units of equipment with design internal temperature of 149°C (300°F) and over, or 10°C (50°F) and under shall be insulated from their supports or the supports insulated from the structures to which they are attached where the heat transmitted may be objectionable on the other side of the structure.

On piping and tubing sized less than 10 mm (3/8 in) IPS, attaining 52°C (125°F) to 399°C (750°F) thermal insulating tape equivalent to MIL-I-15349, Type I, shall be applied where applicable for personnel protection.

Insulation in way of supporting hangers shall be adequately protected against crushing.

For painting of surfaces before application of insulation and after application of lagging, see Section 14.

2. MATERIALS

NOTE: Insulating or lagging materials which contain asbestos shall not be used.

(a) Insulating Materials

Insulating materials, defined as materials applied to offer resistance to heat flow shall be of the following (or equivalent) for usage outlined hereinafter:

Low Temperature (-34°C to 52°C (-30°F to 125°F))

Cellular Glass	Fed. Spec. HH-I-551, Type I & II
Fibrous Glass	MA 32-MA-3, MIL-I-16411

*Foamed Plastics	
Flexible	Fed. Spec. HH-I-573 MIL-P-15280, Type II
Rigid	MA 32-MA-4 MA 32-MA-8 Fed. Spec. HH-I-524
Mineral Fiber	Fed. Spec. HH-I-558
Medium Temperature (53°C to 315°C, (126°F to 599°F))	
Calcium Silicate	Fed. Spec. HH-I-523
Felt, Fiber	MIL-I-23128
Fibrous Glass	MA 32-MA-3 MIL-I-16411, Type II
Mineral Fiber	Fed. Spec. HH-I-558
Cellular Glass	HH-I-551
High Temperature (316°C to 537°C (600°F to 999°F))	
Calcium Silicate	Fed. Spec. HH-I-523 or MIL-I-2781
Felt, Fiber	MIL-I-23128
Fibrous Glass	MA 32-MA-3 MIL-I-16411, Type II
Mineral Fiber	Fed. Spec. HH-I-558
(538°C to 649°C (1000°F to 1200°F))	
Calcium Silicate	Fed. Spec. HH-I-523
Felt, Fiber	MIL-I-23128
Fibrous Glass	MIL-I-16411, Type II

*NOTE: Foamed plastics having a freon blowing agent shall not be applied to any freon piping.

(b) Lagging Materials

Lagging, defined as the protective and confining covering or jacket placed over the insulating materials, shall be of the following (or equivalent):

Brattice Cloth (-29°C to 260°C (-20°F to 500°F))	MIL-C-788
Fibrous Glass Cloth, tape and thread	MIL-C-20079
Metal	
Aluminum	ASTM B209
Nominal thickness, mm (inches)	0.4 (0.016)
Steel, Sheet Hot-dipped galvanized	Fed. Spec. QQ-S-775
Nominal thickness, mm (inches)	0.35 (0.014)
PVC	Fed. Spec. L-P-535, Comp. A, Type II (To be used in area where USCG restrictions regarding incombustibility are not in effect)

(c) Adhesives, Coatings & Sealing Compounds

Adhesives	MIL-A-3316 MIL-A-15199*
Bedding Compound	MIL-B-19564
Coating Compound	MIL-C-19565
End Sealing Compound	MIL-C-22395
Finishing and/or Insulation Cements	Fed. Spec. SS-C-160

*Not applicable for adhering fibrous glass insulation and/or lagging.

3. APPLICATION

(a) Piping Insulation

In general, single layer type insulation shall be applied on piping having internal temperatures up to 260°C (500°F). For piping over

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS: (G-MVI-2)
U. S. Coast Guard
Washington, DC 20593
202-426-1464

NVC 5-80
13 MAR 1980

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 5-80

* Subj: Recommended Procedures for Control of Asbestos Hazard on Board Merchant Vessels, OCS Facilities and Deepwater Ports

Ref:
(a) U. S. Department of Labor, Occupational Safety and Health Administration, General Safety and Health Standards (29 CFR 1910.1001)
(b) U. S. Department of Health, Education and Welfare, National Institute for Occupational Safety and Health "NIOSH" Revised Recommended Asbestos Standard, December 1976 (NIOSH Pub 77-169)
(c) CG-190 Equipment List
(d) Industrial Ventilation, A Manual of Recommended Practice, American Conference of Governmental Industrial Hygienist, Lansing, Michigan
(e) U. S. Department of Health, Education and Welfare, National Institute for Occupational Safetyand Health "NIOSH", A guide to Industrial Respiratory Protection, June 1976 (NIOSH Pub 76-189)

1. PURPOSE. This Circular establishes recommended procedures for controlling potentially hazardous exposure to airborne asbestos fibers by crewmembers on board merchant vessels, OCS facilities and deepwater ports.

2. BACKGROUND. Asbestos is a general term used to describe a group of fibrous minerals that do not burn and are excellent thermal insulators. In the past four decades, asbestos has been used for a great number of purposes with two-thirds of all asbestos being used in the construction and shipbuilding industries. Some of the major uses of asbestos are for asbestos cement products, fireproofing, thermal insulation, asbestos cloth, brake lining and gasket materials. Exposure to airborne asbestos fibers significantly increases the risk of incurring four serious diseases: lung cancer, asbestosis (a progressively debilitating lung disease that impairs breathing and increases the risk of serious illness

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2.(cont'd) infections), mesothelioma (a cancer of the linings of the chest and abdominal cavities) and certain gastro intestinal cancers such as colon cancer. A long latent period of 10-40 years from first exposure to development of the disease is frequently noted.

3. DISCUSSION. All vessels have some asbestos insulation material on board. Depending on the individual vessel/facility and year built, the amount and type of asbestos can vary fr[illegible] very little to significant amounts, especially in the engine room spaces. The degree of deterioration of installed asbestos insulation, release of asbestos fibers due to motion of a vessel working in a seaway, exposure to crewmembers incidental to asbestos work on board by others and work performed involving asbestos by crewmembers engaged in maintenance and repair are of major concern. The procedures outlined in this circular are intended to serve as a guide to vessel/faciltiy owners, operators and crewmembers in identifying the hazards involved and prescribing the controls available to minimize the risk of asbestos fiber exposure. Extensive government sponsored studies are currently underway which will serve as a basis for detailed Coast Guard regulations concerning this hazard; however in the interim this circular will provide sufficient information for effective action by all concerned.

4. Action.

a. Recommended Exposure Limits.

Where possible, the exposure of unprotected vessel/facility crewmembers to airborne asbestos should be prevented. If it cannot be prevented, it should be controlled by the methods prescribed in Enclosures (1), (2), (3) and (4) to the exposure limits given below:

(1) Working Environments.

Unprotected persons should not be exposed to airborne asbestos fiber concentrations in excess of 2.0 fibers (longer than five micrometers) per cubic centimeter of air (2.0 f/cc) averaged over an eight-hour work day. Unprotected persons should never be exposed to airborne asbestos fiber concentrations in excess of ten fibers (longer than five micrometers) per cubic centimeter of air for 15 minutes as a ceiling, reference (a).

(2) Living Environment.

Persons should not be exposed to airborne asbestos fiber concentrations in excess of 0.1 fibers (longer than five micrometers) per cubic centimeter of air (0.1 f/cc).

4.a.(2)(cont'd) NOTE: The U. S. Maritime Administration Study "Assessment of Asbestos Concentrations in the Engineroom Environment of Marine Vessels, Phase II" will provide additional data to better address ambient levels of asbestos.

b. Limitation on Fabrication, Installations and Use

The fabrication, installation or use of asbestos containing materials should be prevented except where no acceptable substitute material exists.

c. Substitute Materials.

Enclosure (5) contains a list of commonly used asbestos materials for which acceptable substitutes are available.

d. Removal or Rip-Out Restricted.

(1) NOTE: Scientific research and experience has shown that asbestos repair operations and removal or rip-out operations conducted on board ship and on shore, asbestos brake and clutch maintenance work and asbestos gasket fabrications work will most likely exceed the working environment exposure limits.

(2) Removal or rip-out of asbestos insulation or other asbestos materials should not be done by crewmembers, except for repair work which has been approved by the master. Such work should normally be conducted by persons specifically trained in safe removal procedures and ventilation controls, work practice controls, personal protection controls and environmental monitoring listed in enclosures (1), (2), (3) and (4). Asbestos removal should be supervised by a person specifically trained in safe removal procedures. The work practice controls and personnel protective controls listed in enclosures (2) and (3) should be followed.

e. Repair Deteriorated or Damaged Asbestos.

Damaged or deteriorated asbestos should be repaired at the earliest opportunity to prevent the spread of airborne asbestos fibers. Insulation should be repaired rather than ripped out or removed unless damage is severe, or if the insulation has become ineffective. Supervision by a person trained in asbestos removal, work practice controls and personnel protective controls listed above should be followed.

f. Asbestos Exposure Control Training.

Enclosure (6) contains information regarding the availability of training in Asbestos Exposure Control Procedures.

4.g. Identification.

(1) Asbestos containing material is believed to have been installed on all types of vessels. Enclosure (5) contains a list of commonly encountered asbestos containing material. Since visual recognition is unreliable, all suspect material should be considered to be asbestos containing unless known to be otherwise. Suspect materials that are damaged, deteriorated or scheduled for removal,can be analyzed at a chemical laboratory using high x-ray diffraction techniques to determine the presence of asbestos prior to repair/rebuilding work.

(2) Following the removal or rip-out of asbestos thermal insulation, the replacement material should be identified as "asbestos free" by the application of a red undercoat sealer (enclosure (2)). During subsequent rip-out or repair, the repairer will be able to determine if asbestos or asbestos free insulation is installed by scraping through the exterior paint to determine if a red undercoat is present.

h. Medical Monitoring.

Personnel occupationally exposed to asbestos should be medically monitored (enclosure (8)).

Henry H. Bell
Henry H. Bell
Chief, Office of Merchant Marine Safety

Encl: (1) Asbestos Ventilation Controls for Working Environment
(2) Asbestos Work Practice Controls
(3) Asbestos Personnel Protective controls for Working Environments
(4) Asbestos Environmental Monitoring
(5) Frequently Encountered Asbestos Containing Materials
(6) Asbestos Exposure Control Training
(7) Asbestos Protective Equipment Lists
(8) Medical Surveillance
(9) List of Suggested References

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 5 - 80
13 MAR 1980

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List CG-12

Enclosure (1) to NVC 5-80

ASBESTOS VENTILATION CONTROLS FOR WORKING ENVIRONMENTS

1. General Ventilation. All general ventilation systems in areas where asbestos rip-out, removal, or repair operations will be conducted, should be secured prior to the commencement of operations and should not be restarted until after clean-up operations have been completed. If necessary, temporary general exhaust ventilation to reduce airborne asbestos concentrations can be provided to these areas by exhausting the air through approved ventilation air filters. (A ventilation air filter having a minimum efficiency of 95% for removing particles as small as one micrometer in size).

2. Local Exhaust Ventilation. Power operated tools used in asbestos work operations should be provided with a local exhaust ventilation system. Local exhaust ventilation should also be provided at the point of airborne fiber generation. All local exhaust ventilation should exhaust through approved ventilation air filters.

3. Design, Construction and Operation. All asbestos ventilation systems should be designed, constructed and operated in accordance with criteria specified in reference (d). A routine periodic testing and maintenance schedule should be conducted on all such equipment to assure proper system performance.

ASBESTOS WORK PRACTICE CONTROLS

1. **Asbestos Brake and Clutch Maintenance. Exposure of personnel to asbestos above the working environment exposure limits should be prevented by using a high efficiency filtered vacuum cleaner (enclosure (7)) equipped with a suction hose with attached brush to remove the asbestos-containing dust from the brake drums, assemblies and clutch assemblies prior to the maintenance work. Personnel engaged in brake or clutch maintenance work should wear an approved dust filter respirator.**

2. **Asbestos Gasket Fabrication. The exposure of personnel to asbestos above the working environment exposure limits should be prevented by equipping the hand operated or power driven tool used to cut the asbestos with an approved filtered exhaust ventilation system. Personnel engaged in asbestos gasket fabrication shall wear a NIOSH approved dust filter respirator.**

3. **Segregate Areas. Locations where airborne concentrations of asbestos are likely to exceed the permissible exposure limits should be posted at the entrances with warning sings and segregated from general use by the use of ropes, dust partitions or other suitable barriers so that unprotected personnel will not inadvertently enter and expose themselves. Only personnel directly engaged in asbestos handling operations should be allowed within the segregated area.**

4. **Wet Methods. Insofar as practical, asbestos should be handled, removed, cut, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the working environment exposure limits.**

5. **Hand Operated Tools. Power operated tools should not be used to remove asbestos thermal insulation. Locally exhausted power operated tools may be used in other asbestos work operations, such as the fabrication of asbestos gasket materials.**

6. **Contain Contamination. Insofar as practical, drop cloths or dust partitions should be used to prevent or contain the spread of asbestos contamination.**

7. **Vacuuming or Wet Sweeping. Areas that become contaminated by asbestos insulation scrap and debris should be vacuum cleaned or should be wet down before sweeping to assist in the control of asbestos dust. Vacuum cleaners shall be of the high efficiency filtered type (enclosure (7)).**

8. **Waste Handling Disposal**. Asbestos waste, scrap, debris, equipment and asbestos contaminated clothing consigned for disposal should be collected, wetted, and disposed of in sealed impermeable bags. Such bags should be affixed with a warning label (Enclosure (7)). Waste asbestos material should be retained in sealed bags in a secure location or receptacle until disposed of by burial under a minimum of two feet of earth at a public landfill operated in accordance with 40 CFR 241. The vessel/facility owner/operator should coordinate with state and local authorities for any special regulation required for the disposal of asbestos materials.

9. **Identification**.

   a. In place of other control procedures, a red undercoat sealer should be used to identify asbestos-free thermal insulation prior to final painting.

   b. When installing asbestos-free thermal insulation, the glass cloth lagging should be secured to the insulation substrate with a coat of white adhesive. A sealer coat of red tinted adhesive should then be applied (Enclosure (7)), the exterior of the lagging should be painted in the conventional manner.

Enclosure (3) to NVC **5-80**

ASBESTOS PERSONNEL PROTECTIVE CONTROLS FOR WORKING ENVIRONMENTS

1. Respirators. Respirators for asbestos work should be selected and worn on the following basis:

   a. Asbestos rip-out on vessels/facilities during casualty repairs. A NIOSH approved type "C" continuous flow supplied air respirator or a NIOSH approved powered air purifying respirator (Enclosure (7)).

   b. If the work to be performed will not exceed the airborne asbestos working exposure limit by more than ten times (10x), a NIOSH approved dust filter respirator may be used (Enclosure (7)), however, this can only be determined using proper environmental monitoring techniques. If no sampling data is available, or if the sampling data indicates an exposure of more than ten times the limit, a NIOSH approved type "C" continuous flow supplied air respirator or a NIOSH approved powered air purifying respirator should be used.

   c. The removal of intact thermal insulation pads is considered a normal asbestos removal (rip-out) operation. Personnel engaged in these operations should be required to wear an approved dust filter respirator.

   d. A person should not be assigned to tasks requiring the use of respirators if, based upon his most recent medical examination, an examining physician determines that the person will be unable to function normally wearing a respirator, or that the safety or health of the person or other personnel will be impaired by his use of a respirator.

   e. When using a supplied-air respirator, proper precautions must be taken to ensure that breathing-quality air is supplied in accordance with recommendations in reference (e).

2. Special Clothing. During all asbestos rip-out and repair operations, and during other asbestos operations for which environmental sampling is lacking or the sampling indicates the operation can exceed the asbestos environment working exposure limit, the following special clothing should be provided and should be required to be worn: disposable impermeable coveralls, hoods, gloves and foot coverings (Enclosure (7)). Safety glasses with side shields or a full-length face shield should be worn when full face respirators are not in use.

3. Change Areas. At locations where special clothing is required, a change area should be provided as close as practical but physically separate from the asbestos work area so that employees may change into their work clothes.

4. Locker and Shower Facilities. At facilities where personnel are occupationally exposed to asbestos, two separate clothes lockers should be provided to each exposed employee so seperated as to prevent contamination of the employee's work clothes from the contaminated garments. At these facilities showers should also be made available to the exposed employees, and the employees should be required to shower before leaving the workplace at the end of the work shift.

ASBESTOS ENVIRONMENTAL MONITORING.

1. Requirements. Upon identification of any living or working environment where friable asbestos exists or where any asbestos is deteriorated or damaged, air sampling should be conducted to determine the level of airborne asbestos fibers present. Except during casualty repairs, in each area where personnel enter, work or live where asbestos concentrations are likely to exceed the permissible exposure limits, air samples should be collected with such frequency and pattern to represent with reasonable accuracy the actual airborne concentration. Sampling should not be at intervals greater than six months. SAMPLING SHOULD BE CONDUCTED BY OR UNDER THE TECHNICAL SUPERVISION OF AN INDUSTRIAL HYGIENIST OR OTHER QUALIFIED INDIVIDUAL. In evaluating asbestos exposures in repair or removal operations or other operations where asbestos is handled, samples should be taken in the workers' breathing zone as well as the general work environment to determine time weighted average and peak exposures. Other exposures such as those in a living area can be evaluated by sampling the general environment only. Records of asbestos environmental monitoring analytical results, vessel/facility location, origin of asbestos contaminants and costs of removal/repairs should be maintained on the vessel/facility.

2. Collecting Samples. Samples should be collected on a 37-mm Millipore type AA filter of 0.8 micrometer porosity or equivalent mounted in an open face holder. When collecting personnel samples, the holder should be fastened to the worker's lapel and air drawn through the filter by means of a battery powered personnel sampling pump. To yield a uniform distribution of sampled deposit, the filterholder face-cup should be removed. Sample should be to approximately 2 liter per minute. Eight hour time-weighted average exposure concentrations should be determined. The peak or ceiling limit should be evaluated from the results of several 15 minute samples taken throughout the work shift. Living environment airborne concentrations should be evaluated from the results of at least one 8 hour sample.

3. Pump Calibration. Prior to the start of sample collection, the pump to be used should be calibrated using a NIOSH approved method (i.e. the soap bubble calibration technique using a one-liter calibrated buret). To assure accuracy, the calibration instrument must be connected to the pump following the same sequence of equipment which will be used in the actual sampling procedure. Each pump used must be calibrated separately.

4. Sample Analysis. Samples should be analyzed using phase contrast microscopy by a laboratory which is a current successful participant in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing (PAT) Program for asbestos.

Enclosure (5) to NVC 5 - 80

FREQUENTLY ENCOUNTERED ASBESTOS CONTAINING MATERIALS.

1. **Asbestos Thermal Insulation**
2. **Asbestos Thermal Insulation cement**
3. **Asbestos spackling, joint cement and wall patching compounds**
4. **Asbestos cement sheet and siding**
5. **Asbestos floor tile**
6. **Asbestos ceiling tile**
7. **Asbestos welding blankets**
8. **Asbestos cement sprayed on walls, ceilings, and structural supports**
9. **Ships marinite paneling**
10. **Asbestos engine exhaust insulation**
11. **Asbestos sprayed on air distribution ducting**
12. **Asbestos fire fighting suits**
13. **Asbestos gloves**
14. **Asbestos gaskets (certain types have no acceptable substitute)**
15. **Asbestos valve packing**
16. **Asbestos brake lining (no acceptable substitute)**

Enclosure (6) to NVC 5-80

ASBESTOS EXPOSURE CONTROL TRAINING.

1. The National Institute for Occupational Safety and Health offers several courses that may be of benefit to personnel who work with asbestos. For information, contact:

National Institute for Occupational Safety and Health
Division of Training and Manpower Development
4676 Columbia Parkway
Cincinnati, OH 45226

Some courses offered include:

1. Occupational Respiratory Protection #593
2. Industrial Hygiene Measurements #550
3. Industrial Hygiene sampling, Decision Making, Monitoring and Recordkeeping: Sampling Strategies #553
4. Sampling and Evaluating Airborne Asbestos Dust #582
5. Introduction of Occupational Safety #508
6. Gas, Vapor and Particulate Sampling #592

Enclosure (7) to NVC **5-80**

ASBESTOS PROTECTIVE EQUIPMENT LIST.

1. The National Institute for Occupational Safety and Health publishes a complete list of approved protective equipment (HEW pub. (NIOSH) 76-145). The items listed below are several other sources where protective equipment may be obtained.

2. Items Required for Repair or Rip-out Work.

   a. Disposable Coverall. Impermeable suit with drawstring hood, elastic wrists and attached non-skid shoes.

Product I. D.	Source
539 tyvek	MELCO 6603 Governor Printz Blvd. Wilmington, Delaware 19809 Tel: 800-441-9749
2126S with attached 2196 hood	DURAFAB P. O. Box 658 Clebume, TX 76031 Tel: 800-433-1024

   b. Gloves. Surgeons, rubber, sterile, disposable.

Size	
Various sizes	Playtex Industrial Glove Div. International Playtex Co. 888 7th Ave. NY, NY 10019
Various sizes	The Granet Corp. P. O. Box 588 25 Loring Dr. Farmington, MA 01701 (617) 875-3521

   c. Overshoes, rubber, non-skid.

Various sizes	Uniroyal Protective Clothing and Footwear 58 Maple Street Naugatucle, Conn. 06770
Various sizes	Edmont-Wilson Division of Becton, Dickinson and Co. Coshocton, OH 43812

2.d. **Breathing Air Respirator System. NIOSH Approved**
(Select either continuous flow airline or powered air purifying respirator system)

(1) Continuous Flow Airline. Compressor not required if breathing air meets requirements listed in reference (e).

Product I. D.	Source
AABA Breathing Air Compressor (powered by L. P. Plant Compressor Inc. Use with 1860 respirator and 622 R714-50 Hose (need 2 lengths PA 19603 hose for each respirator and 376-6161 2 for connecting LP air system to AABA)	Willson Prod. Div. ESB P. O. Box Reading, Tel: 215-
P/N605041-02 Breathing Air Compressor (powered by L.P. St. plant compressor) or 605041 Breathing Air Compressor 716-683-5100 (powered by 115 or 230 VAC, 60 cycles.) use with 606002-25 respirator and 605020-50 hose (need 1 length for each respirator and 2 lengths for connecting L. P. air system to compressor)	Scott Corp. 275 Erie Lancaster, NY 14086 Tel:

(2) Powered Air Purifying. Compact self-contained filter unit with blower, and rechargeable batteries. No compressor required.

Product I. D.		Source
463355 use with 463284 filters	Center Blvd.	M. S. A. 600 Penn Pittsburgh, PA 15235 Tel: 412-273-5000
A-5 Air Purifying Helmet		Racal S. Reasearch Place Rockville, MD 20850 Tel: 301-948-4421

CAUTION: This type of respirator offers no protection against gases or vapors. Do not use in areas containing less than 19.5% oxygen.

2.e. **Impermeable Plastics Bags.** For waste disposal.

Size	NSN
19 1/2" x 38" x .0025"	any impermeable red in color

Should be labeled as follows:

CAUTION--CONTAINS ASBESTOS FIBERS--AVOID CREATING DUST--BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM

f. **Line.** Used to restrict, access, etc.

Size	
1/4" x 200'	any

g. **Signs.** Used to post area, yellow with black lettering noting:

CAUTION
ASBESTOS
DUST HAZARD
AVOID BREATHING DUST
WEAR ASSIGNED PROTECTIVE EQUIPMENT
DO NOT REMAIN IN AREA UNLESS YOUR WORK REQUIRES IT
BREATHING ASBESTOS DUST MAY BE HAZARDOUS TO YOUR HEALTH

Product ID	Source
NKU-19 (14x20)	Ready Made Sign Co. 12-07 44th Ave. L. I. City, NY 11101 Tel: 212-784-7000
09-901 (14x20)	Direct Safety Co. 60005 Martway, Suite 103 P.O. Box 2994 Shawnee Mission, KA 66201 Tel: 800-255-4416

h. **Water Sprayer.** Used to wet asbestos.

Product ID	Source
TEK Srpayer No. 67132	H. D. Hudson Co. 500 N. Michigan Ave. Chicago, IL 60611

i. **Drop Cloth.** Laminated vinyl nylon cloth.

Color	Size	
Green	54 inch width	any impermeable

2.j. **Red tinted adhesive sealer. Products meeting the requirements of MIL-A-3316, Class I, Grade B**

Product ID	**Source**
50-207	**Essex Chemical Corp. 14370 Grannet St. La Mirada, CA 90636**
713-(31158)	**BRC DIV VIMASCO Corp. P. O. Box 516 Netro, W.V 25143**
E-165 8-b (Red)	**Borden Chemical Co. 56 Nostrand Brooklyn, NY 11205**

3. **Optional Items.**

a. **Masking Tape**

Size	
1 1/2"-2"	**any**

b. **High Efficiency Vaccuum Cleaner. Removes and retains 99.97% of all dust particles down to 0.3 microns in size.**

Product ID	
GA70 with exhaust filter	**NILFISK Box 713 201 King Manor Dr. King of Prussia, PA 19046 Tel: 215-277-3900**
JB75AV	**Pullman Holt 10702 46th St. Tampa, FL 33617 Tel: 513-971-2223**

Coast Guard personnel medical requirements are fulfilled by the U. S. Public Health Service. The following "Medical Surveillance requirements for Asbestos" which have been promulgated by the Commandant for employees of the Coast Guard is recommended as a guide for use with crewmembers exposed to asbestos.

MEDICAL SURVEILLANCE REQUIREMENTS FOR ASBESTOS

1. Medical Monitoring Action Level.

a. Employees (military and civilian) exposed to airborne concentration in accordance with the criteria listed below shall be included in the Asbestos Medical Surveillance Program:

(1) Exposure at any time during the calendar year to airborne asbestos concentrations at or above 5 fibers per cubic centimeter and greater than 5 micrometers in length.

(2) Exposure on a regular basis to asbestos concentrations or exceeding 0.5 fibers per cubic centimeter, greater than 5 micrometers in length, averaged over an eight hour work day. On a regular basis is defined in accordance with reference (f) as 3 separate days per calendar quarter.

2. Medical Surveillance.

a. Preplacement evaluation of all Coast Guard personnel, both civilian and military, upon assignment to a position involving to asbestos, as defined in the "Medical Monitoring Action Level" section, shall have a health evaluation. This evaluation shall be performed within 30 days and should include the following:

(1) A comprehensive occupational history detailing prior exposure to potentially harmful chemical or physical respiratory particularly asbestos. Any adverse effects related to these exposures must also be recorded. A respiratory history with emphasis on the presence of respiratory symptoms and must also be recorded. This information should be recorded on the Medical Surveillance Questionnaire, (CG-5197) as shown in enclosure (2).

(2) A physical examination with special emphasis on the chest, particularly the presence of persistent "dry rales" or "crackles" at the lung base.

(3) A 14 x 17 posterior-anterior chest roentgenogram. These films shall be locally screened and interpreted in accordance with current radiological practices. In addition, these films shall also be interpreted in accordance with the ILO-U/C International Classification of Radiographs of Pneumoconiosis, 1971.

2.a.(4) Pulmonary function tests including forced expiratory volume in one second (FEV1) and forced vital capacity (FVC). Such tests should be performed, calculated, and interpreted in accordance with the Navy Environmental Health Center Technical Manual 77-1, May 1977.

(5) A judgment of the workers ability to use respiratory protective equipment.

(6) The findings of severe respiratory impairment from any cause, e.g., FEV1/FVC less than 45% or FVC less than 70% of predicted or the presence of documented actual or probable pulmonary asbestosis, should be disqualifying for initial assignment. Any other abnormalities discovered in the course of the preemployment evaluation should be investigated to determine if they could substantially increase the risk of asbestos-induced disease.

b. Periodic and termination-of-employment evaluations. A medical evaluation identical to section 2.a. (3)-(6) of this enclosure, preemployment examination, shall be conducted annually and within 30 days before or after their termination of employment for all personnel occupationally exposed to asbestos fibers. Personnel shall be notified of any abnormalities detected by screening tests (preplacement, periodic, or termination of employment) and the medical record specifically so noted and initialed by physician and patient. If the records indicate that the employee has received an annual physical examination within the past 12 months, a termination examination is not required.

c. When an individual is no longer exposed, as defined under the "Medical Monitoring Action Level" section, he will continue to be medically monitored if any of the following criteria are met:

(1) regularly smokes one or more cigarettes per day.

(2) 5 years accumulated exposure to asbestos, and

(3) has any asbestos-associated disorder.

d. An individual, not currently exposed, as defined under the "Medical Monitoring Action Level" section, who believes he was exposed in the past, shall complete the Medical Surveillance Questionnaire, (CG-5197). Based on the review of this questionnaire the individual may be requested to take a full asbestos physical. If the results warrant the individual will be placed in the Asbestos Medical Surveillance Program. If the results are negative the individual will be recalled in five (5) years for re-examination.

3. **Diagnosis of Asbestosis and related disorders.**

   a. **The diagnosis of "asbestosis" is presumptive with known past exposure to asbestos (the presence of pleural changes or asbestos bodies in the sputum may support or suggest past exposure) and two or more of the following criteria:**

      (1) **Dyspnea (shortness of breath) on exertion,**

      (2) **Persistent basal inspiratory "crackles" or "dry rales,"**

      (3) **Diffuse interstitial changes on the chest roentgenogram,**

      (4) **Reduction in vital capacity and diffusion capacity, and**

      (5) **Digital clubbing.**

   b. **In early stages of the disease, dyspnea and roentgenographic changes may not be present and the only abnormalities may consist of a slight reduction in the vital capacity, arterial desaturation with exercise, and end-inspiratory rales. A history of exposure to asbestos is critical to the diagnosis. It is unusual for pulmonary asbestosis to develop with less than 10 years of exposure. Individual's with medical findings suggestive of asbestosis, but not supported by an adequate history of exposure, should have further evaluation by a pulmonary specialist to rule out other diagnoses.**

   c. **workers who have been exposed to asbestos in the past and show abnormal lung changes, e.g., pleural plagues and/or pleural thickening, shall be diagnosed as having an asbestos-related disorder and shall be placed in the medical surveillance program.**

4. **Medical Records.**

   a. **All personnel who are included under the Medical Surveillance Program shall have the exterior of their health records prominently marked "ASBESTOS."**

   b. **Each individual record must include the following identifying information:**

      (1) **Name,**

      (2) **Social Security Number,**

      (3) **Date of Birth,**

4.b. (4) Dates of examinations, and

(5) Job titles, job codes, and if military, rank or rate.

c. All records of examination, possible asbestos-related conditions related x-ray interpretations and all forms and correspondence related to the employee's medical history shall become a permanent part of the health record and be retained for a period of 50 years following termination of service/employment. X-ray films shall be retained for a period of five (5) years.

d. The judgment of the occupational health physician concerning the adequacy of the diagnostic information to support the impression of asbestos-related disease shall be entered in the medical record. Lacking definitive criteria the evaluating physician must exercise his best medical judgment on each individual case.

e. Copies of a summary of any examinations, x-ray reports, or special studies in an individuals health record or compensation folder shall be made available to a physician of the individual's choice after execution of a proper release of information.

f. Medical records as defined in b. and c. of this section shall be maintained locally pending the establishment of an Asbestos Occupational Exposure Data Bank by the Office of Health Services.

5. Education.

a. All personnel currently exposed to asbestos, as defined by the "Medical Monitoring Action Level" section and their supervisors shall receive detailed medical indoctrination and periodic refresher training concerning asbestos exposure.

b. The Initial indoctrination shall include but is not limited to the following:

(1) Hazards of asbestos,

(2) Association of cigarette smoking and asbestos-ralated disease, and

(3) Procedures for reporting actual or suspected exposure to uncontrolled asbestos.

(c) All personnel, including supervisors, not covered under the "Medical Monitoring Action Level" who could incidentally come in contact with asbestos or asbestos-containing materials, shall be informed of the potential medical risks.

best copy available

DEPARTMENT OF TRANSPORTATION U.S. COAST GUARD CG-5140 (3-79)	MEDICAL SURVEILLANCE QUESTIONNAIRE	DATE OF SUBMISSION

NAME	RANK/RATE	HOME ADDRESS/MILITARY UNIT	SEX	DATE OF BIRTH	CURRENT JOB DESIGNATION

PART I - OCCUPATIONAL HISTORY

INSTRUCTIONS: Please complete the following work history; begin with your present job or military assignment, and list all jobs you have held.

Be as specific as possible; if you held more than one job with the same employer, list each job title and activity. Use additional sheets as needed.

COMPANY OR MILITARY UNIT *County and state where worked*	DATES WORKED		FULL/PART TIME JOB CHECK		JOB TITLE AND WORK ACTIVITIES	POTENTIAL HAZARDS EXPOSED TO		PROTECTIVE EQUIPMENT WORN *Respirator, ear plugs, etc.*
	FROM MO/YR	TO MO/YR	FULL	PART		PHYSICAL *Noise, vibration, etc.*	CHEMICAL *Heavy metals, Freon, solvents, etc.*	

SN-7530-01-GF2-4820

REVERSE OF CD-8197 (3-78)

SECONDARY (MOONLIGHTING) JOBS YOU HAVE HELD *(Part-time, summer, etc.)*	DATES (MO/YR)	
JOB TITLE	FROM	TO

HOBBIES & ACTIVE SPORTS *(Past and present, such as painting, woodworking, scuba diving, etc.)*

WORK RELATED EXPERIENCES, COMMENT ON *(Those you feel may have been harmful to your health)*

PART II - RESPIRATORY SYMPTOMS

Since your last examination or visit to the doctor, have you experienced any of the following

SYMPTOM	YES	NO	NOT SURE	SYMPTOM	YES	NO	NOT SURE
a. COUGH				h. EXPECTORATION (PHLEGM)			
b. FEVER				i. STUFFY NOSE			
c. CHILLS				j. EYES BURNING OR WATERING			
d. MUSCLE ACHES				k. THROAT SORE OR BURNING			
e. SHORTNESS OF BREATH				l. LOSS OF APPETITE			
f. Chest pains, aching, tightness, burning				m. WEIGHT LOSS			
g. WHEEZING							
DO YOU SMOKE CIGARETTES, CIGARS OR PIPE?				HOW OLD WERE YOU WHEN YOU BEGAN TO SMOKE CIGARETTES, CIGARS OR PIPE?			

NUMBER OF CIGARETTES, CIGARS OR PIPEFULS SMOKED DAILY. GIVE BEST ESTIMATE *(A pack contains 20 cigarettes)*

_____CIGARETTES/DAY _______CIGARS/DAY _______PIPEFULS/DAY

Enclosure (9) to NVC **5-80**

List of Suggested References

1. "Assessment of Asbestos Concentrations in the Engineroom
   Environment of Marine Vessels"
   U. S. Maritime Administration
   Office of Commercial Development
   Washington, D. C. 20230
   Attn: Joseph H. Seelinger, Program Manager

2. "Asbestos Dust Inhalation" Proceedings of the Merchant
   Marine Safety Council, September 1979

3. Asbestos Exposure: What it Means, What to Do. 1978. 14pp;brochure
   Source: National Cancer Institute; Office of Cancer Communications;
   Bldg. 31, Rm.10A18; 9000 Rockville Pike; Bethesda, MD 20014

4. Asbestos and You. B. I. Castleman; A. J. Fritsch. Revised 1974.
   64 pp; booklet
   Source: Citizens Energy Project; 1413 K St., N.W. 8th Floor;
   Washington, D.C. 20005. Telephone (202) 393-6700.

5. What you Should Know About Asbestos and Health. 11 pp; brochure.
   Source: Asbestos Information Association/North America; 1745 Jefferson
   Davis Hwy.; Arlington, VA 22202. Telephone (703) 979-1150.
   Or: Johns-Manville; Health Safety & Environment Dept.; Ken-Caryl
   Ranch;
   Denver, CO 80217. Telephone (303) 979-1000, ext. 3120.

6. Working with Asbestos (Motion Picture). 1 reel: 25 min.; sound;
   color;
   Source: Johns-Manville; Health, Safety & Environment Dept.; Ken-Caryl
   Ranch; Denver, CO 80217. Telephone (303) 979-1000, ext 3120.

7. Asbestos and the Docker. Nov 75. 4 pp; leaflet
   Source: Asbestos Informatio Centre Ltd.; Sackville House; 40 Piccadilly;
   London, WIV 9PA, United Kingdom. Telephone 01-439-9231.

8. Asbestos Dust and Your Health. Jun 76. 4pp; leaflet
   Source: Asbestos Information Centre Ltd.; Sackville House; 40
   Piccadilly; London, WIV 9PA, United Kingdom. Telephone 01-439-9231.

9. Before You Begin There Are Some Things You Should Know. 12 pp;
   brochure.
   Source: Asbestos Information Association/North America; 1745 Jefferson
   Davis Hwy.; Arlingtron, VA 22202. Telephone (703) 979-1150.
   Or: Johns-Manville; Health, Safety & Environment Dept.; Ken-Caryl
   Ranch; Denver, CO 80217. Telephone (303) 979-1000, ext. 3120.

10. Asbestos Health Hints for the Workplace. (Posters). 6 posters;
    15"x23"; color
    Source: Asbestos information Association/North America; 1745 Jefferson
    Davis Hwy.; Arlington, VA 22202. Telephone (703) 979-1150.

11. Recommended Practices for Handling Asbestos Fiber. (Poster) 1 poster; 11" x 14"; color
Source: Asbestos Information Association/North America; 1745 Jefferson-Davis Hwy.; Arlington, VA 22202, Telephone (703) 979-1150.

12. Asbestos Dust-Safety and Control. Jun 76. 24 pp; brochure.
Source: Asbestos Information Center Ltd.; Sackville House;
40 Piccadilly; London; WIV 9PA, United Kingdom. Telephone 01-439-9231.

13. Recommended Practices for Handling Asbestos Fiber. 4 pp; leaflet.
Source: Asbestos Information Association/North Amercia;
1745 Jefferson-Davis Hwy.; Arlington, VA 22202. Telephone (703) 979-1150.

14. Industrial Ventilation - A Manual of Recommended Practice. 15th Ed. 1978 Manual
Source: Committee on Industrial Ventilation; P. O. Box 16153; Lansing, MI 48901.

15. "Safety Measures When Handling Asbestos". R. M. Wagg. Royal Society of Health Journal, 96(6):252-5, Dec 76.

16. Asbestos Information Association/North America; 1745 Jefferson-Davis Hwy.; Arlington, VA 22202. Telephone (703) 979-1150.

17. Asbestos Information Centre, Ltd.; Sackville House; 40 Piccadilly; London WIV 9PA, United Kingdom, Telephone 01-439-9231.

18. Asbestos-Associated Disease in United States Shipyards." I. J. Selikoff; E. C. Hammond. CA-Cancer Journal for Clinicians, 28(2);87-99, Mar-Apr 78.

19. "Current Information on the Health Risk of Asbestos." P. C. Elmes. Royal Society of Health Journal, 96(6);248-52, Dec 76.

20. Occupational Health. Exposure to Asbestos. 20 Jun 77. 6 pp; standard.
Source: Dept. of the Air Force; Headquarters U. S. Air Force;
Washington, D.C. 20330.

21. "Respirable Free-form Asbestos." consumer Product Safety Commission. Federal Register, 42(146);38782-91, 1977.

22. Development of an Instrumental Monitoring Method for Measurement of Asbestos Concentrations in or Near Sources. Environmental Protection Technology Series. A. Pattnaik; J. D. Meakin. JUN 73. 47 pp; report.
Source: National Technical Information Service (NTIS); 5285 Port Royal Rd. Springfield, VA 22161. Telephone (703) 557-4650.

23. The Measurement of Airborne Asbestos Dust by the Membrane Filter Method.
Asbestosis Research Council. Revised 1971. 10pp; manual.
Source: Asbestosis Research Council; P. O. Box 18; Cleckheaton, West Yorkshire
BD19 3UJ, United Kingdom.

24. Asbestos Minerals in Modern Technology.
Source: Johns-Manville; Health, Safety & Environment Dept;
Ken-Caryl Ranch; Denver, CO 80217. Telephone (303) 979-1000, ext. 3120.

25 Occupational Safety and Health: A Bibliography. U. S. Department of Labor.
1974. 363 pp; bibliography.
Source: National Technical Information Service (NTIS); 5285 Port Royal
Rd.; Springfield, VA 22161. Telephone (703) 557-4650.

26. Pub. No. 72-10267, Criteria for a Recommended Standard: Occupational
Exposure to Asbestos, 140 pp. Revised: See 77-169
GPO: 017-033-00009 Price: $2.10
NTIS: PB209510 Price: $7.25

27. Pub. No. 77-169, Revised Recommended Asbestos Standard. 100 pp.
GPO: 017-033-00229-1 Price: $2.30
NTIS: PB273965 Price: $6.00

Mr. **Biaggi**. The first three witnesses will appear in a panel: Mr. Richard Lemen, Assistant Chief, Industrywide Studies Branch, Division of Surveillance, Hazard Evaluations and Field Studies, National Institute for Occupational Safety and Health, Department of Health and Human Services, Washington, D.C.; Doctor Leonard Bachman, Director, Division of Hospitals and Clinics, Pureau of Medical Services, Health Services Administration, U.S. Public Health Service, Department of Health and Human Services, Washington, D.C., who is accompanied by Doctor Robert Brandt, chief, occupational and environmental medicine, Baltimore Public Health Service Hospital.

STATEMENTS OF A PANEL CONSISTING OF RICHARD A. LEMEN, ASSISTANT CHIEF, INDUSTRYWIDE STUDIES BRANCH, DIVISION OF SURVEILLANCE, HAZARD EVALUATIONS AND FIELD STUDIES, NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH CENTER FOR DISEASE CONTROL, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE; LEONARD BACHMAN, M.D., DIRECTOR, DIVISION OF HOSPITALS AND CLINICS, BUREAU OF MEDICAL SERVICES, HEALTH SERVICES ADMINISTRATION, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE; AND DR. ROBERT BRANDT, CHIEF, OCCUPATIONAL AND ENVIRONMENTAL MEDICINE, BALTIMORE PUBLIC HEALTH SERVICE HOSPITAL

Mr. **Lemen**. I am pleased to have been invited to discuss occupational exposure to asbestos, a subject I have been involved with since 1970. I participated in the investigation that helped to stop exposures in the asbestos insulation plant in Tyler, Tex., where over one-fourth of the plant's former employees are expected to contract asbestos-related diseases. I have also conducted industrial hygiene and epidemiologic studies in approximately a dozen other asbestos manufacturing and processing facilities in the United States. I was the primary author of the NIOSH revised recommended standard for asbestos, as well as the monograph on asbestos published by the International Agency for Research on Cancer (IARC).

I would like to begin by describing the functions of the National Institute for Occupational Safety and Health (NIOSH) and then give a brief review of what is known about asbestos-related disease. I will also provide some information about shipboard exposures.

NIOSH was established by the Occupational Safety and Health Act of 1970 to conduct programs of occupational safety and health research, standards development, technical assistance, and manpower development. Under the Federal Mine Safety and Health Act NIOSH is also responsible for conducting mine health research, recommending health standards, and conducting health hazard evaluations in mines. Under these authorities NIOSH makes recommendations to the Department of Labor for new or revised occupational standards.

Workplace exposure to asbestos is probably the No. 1 occupational health problem in the United States, both because of the vast number of workers exposed—an estimated 8 million workers since the beginning of World War II—and the potential for very severe and debilitating disease.

Asbestos has been termed "the mineral with 1,000 uses," which suggests the degree to which the substance pervades modern life. By actual count there are more than 3,000 uses for asbestos, and this versatility is reflected in the variety as well as the size of the work force exposed. About 1 million workers are currently thought to be exposed to asbestos.

There are several commercial forms of asbestos used in the manufacture of various products. Amosite, sometimes referred to as brown asbestos, and crocidolite, sometimes referred to as blue asbestos, and chrysolite, sometimes referred to as white asbestos, were the most common fiber types used in the shipbuilding industry. Although their physical characteristics vary somewhat, each of these types of asbestos has been shown to cause cancer and fibrotic lung changes in man.

Workers are exposed to asbestos while mining, milling, and transporting the mineral and while manufacturing and working with products which contain the substance. These products include protective clothing, at one time, mailbags, padding, conveyor belts, pipes, roofing shingles, and gutters. It is also used in manufacturing special paper products, including millboard, fine quality electrical papers, friction materials, such as gaskets and automotive clutch and brake linings, as well as insulation for pipes and boilers and bulkhead linings for ships.

Many workers not directly employed in industrial processes involving asbestos exposure must also be considered susceptible to exposure. Maintenance personnel must often repair machines, pipes, boilers, and bulkheads in asbestos-contaminated workspaces or work directly with products containing asbestos.

Exposure to asbestos significantly increases the risk of contracting three serious diseases: asbestosis, fibrotic scarring of the lung, lung cancer and mesothelioma, cancer of the lining of the chest walls, or the abdominal cavities. Other causes of death that have been associated with asbestos exposure include gastrointestinal cancer and laryngeal cancer. Although asbestos workers who do not smoke can contract lung cancer, the risk is dramatically increased for asbestos workers who also smoke cigarettes.

It is not known how asbestos causes disease. There has been speculation that surface properties, fiber size, and metallic content of the fibers may influence the carcinogenic properties of the substance. The speculation, however, remains to be proven. What is known is that fibers too fine to be seen by the human eye become airborne during various industrial processes, repair, or demolition and may be inhaled or swallowed.

Asbestos comes from a Greek word meaning "inextinguishable." The etymology aptly describes an especially vexing property of asbestos: Its ability to remain in the body, to be, in a sense, "inextinguishable" after it has been inhaled or ingested. As much as 50 percent of inhaled asbestos fibers remains lodged in the lungs where is it almost impossible for the body to dispose of it.

Asbestos-related diseases, particularly cancers, have long latency periods. Frequently it is from 20 to 40 years after first exposure that the disease becomes apparent.

Our best information about the increased risk associated with asbestos exposure is based on NIOSH and other HEW-supported studies of workers heavily exposed to asbestos before the Government began to regulate the substance in the late 1960's and early 1970's. Of the approximately 4 million workers heavily exposed to asbestos in the past, approximately 40 percent can be expected to die of asbestos-related cancer. In the absence of asbestos exposure, less than 10 percent would be expected to die from these types of cancer. Workers without high exposures face smaller risks of asbestos-related disease. But it must be noted that scientists have not been able to determine a safe level of exposure to asbestos.

During World War II, 4.5 million workers are estimated to have worked in shipyards. Currently there are some 120,000 shipyard workers employed in about 450 establishments in the United States.

Several epidemiologic studies have been conducted on persons involved in the building, maintenance and repair of seagoing vessels. Each of the studies has shown an excess of asbestos-associated diseases, including asbestosis, lung cancer, and mesothelioma. In some cases asbestos-induced changes in the lung were detected in the X-rays of over 50 percent of the work force. Mortality among shipyard workers has been much greater than that expected when compared with control populations. This excess has been mainly accounted for by diseases associated with asbestos exposure.

For example, in a study conducted by Dr. Irving J. Selikoff, of Mount Sinai School of Medicine, cancer was responsible for one-half of the total deaths observed among shipyard workers, with lung cancer accounting for 27 percent of all deaths, mesothelioma for 10 percent, and asbestosis for 17 percent. In this study, the levels were generally in the range of 4 to 12 fibers per cubic centimeter for fibers greater than 5 microns in length.

One environmental assessment study conducted for the U.S. Maritime Administration, which was submitted to NIOSH for review, reported on sampling done on two ships in port and one ship at sea.

The samples were taken in various areas of the engineroom of the ships but not during routine maintenance or repair activities. Concentrations in the enginerooms of the two ships at port ranged from .001 to .152 fibers per cubic centimeter greater than 5 microns in length. In the ship at sea the samples were somewhat lower but in the same magnitude range. Samples taken at the Long Beach Naval Shipyard during asbestos removal operations on other ships reported average counts of 40 fibers per cubic centimeter greater than 5 microns in length and some reported as high as 150 fibers per cubic centimeter greater than 5 microns in length. NIOSH currently recommends that workers not be exposed to more than 0.1 asbestos fibers per cubic centimeter, greater than 5 microns in length. Based on these reports, maintenance at sea could generate exposures in these higher fiber ranges. Studies of industrial workers in asbestos trades have shown excessive disease and death for workers exposed at much lower levels than are reported during these ripout operations. To date scientists have been unable to determine a dosage level below which asbestos will not cause disease.

As evidence of its importance as an occupational hazard, asbestos was the subject of the first criteria document developed by NIOSH.

This document served as the basis for the first new standard promulgated by the Occupational Safety and Health Administration—OSHA—after the Occupational Safety and Health Act was passed.

The standard, promulgated in 1972, was intended primarily to prevent asbestosis and reduce the risk of contracting asbestos-induced cancer. It provided for an exposure limit of 5 fibers greater than 5 microns in length per cubic centimeter of air until July 1976, when the limit was to be reduced to 2 fibers per cubic centimeter.

The current standard for occupational exposure to asbestos permits a maximum of 2 asbestos fibers larger than 5 microns in length per cubic centimeter of air. This is not because fibers shorter than 5 microns do not pose a health hazard, but because shorter fibers are difficult to detect by the economically accepted method of analysis, phase contrast optical microscopy. The current limit actually provides for a broad range of exposure to asbestos. This is because the relative proportion of airborne fibers longer than 5 microns may vary from 1 to 50 percent of the total asbestos in a particular air sample. Thus, a work environment may be in compliance with the Federal exposure standard and still offer the possibility of exposure to rather large amounts of asbestos.

Even when one considers only the fibers 5 microns or larger, the total number of fibers a worker can inhale in a permissible occupational environment can be quite large. The average worker inhales six to eight million cubic centimeters of air per working shift. In an atmosphere which complies with the standard, this could mean inhaling up to 16 million permissible fibers per day in addition to the asbestos particles less than 5 microns long.

In 1976, NIOSH evaluated the studies published on asbestos since the 1972 criteria document was transmitted. By then there was evidence that chest X-rays of British asbestos workers were continuing to show abnormalities despite exposures within a two-fiber limit.

Based on this and other evidence, NIOSH recommended that OSHA further lower the standard to 0.1 fibers per cubic centimeter, the lowest concentration at which fibers could be reliably monitored by phase contrast microscopy. In transmitting the revised recommendations to OSHA, NIOSH made the following comment:

> Because it is not possible to specify a safe exposure level for a carcinogen, only a ban on the use of asbestos can ensure complete protection against this mineral's carcinogenic effect. Therefore, emphasis should be placed on prohibiting the occupational use of asbestos in other than completely closed operations and on substituting other products whenever possible. Asbestos should be replaced, where technically feasible, by substitutes with the lowest possible chronic toxicities.

OSHA is presently reviewing the NIOSH recommendations for a new asbestos standard and NIOSH and OSHA are working together to update information on asbestos-related disease.

Control of exposures to seafaring persons should include, as the U.S. Navy has now required, that no new ships contain asbestos and that maintenance, repair and asbestos removal operations be controlled to the greatest extent possible. This would involve assuring appropriate protective clothing and work practices for those directly involved and keeping nonprotected persons away from areas in the ship where asbestos exposure can occur.

Under interagency agreement with the Bureau of Medical Services, NIOSH is supporting the development of a Cooperative Center for Occupational and Environmental Health located on the Public Health Service Hospital grounds in Baltimore. This center also represents a collaborative effort with the Johns Hopkins Hospital University School of Public Health. It will create an opportunity for clinical research, educational and training activities, as well as technical assistance and outreach activities serving the greater Baltimore area. An important part of this program will be the diagnosis and treatment of asbestos-related disease.

Secretary Harris has asked the Assistant Secretary of Health to monitor this project to determine whether similar projects could be undertaken elsewhere. It is hoped that the center will serve as a model to involve other units of the Public Health Service hospital system in meeting the occupational health needs of the communities which they serve.

Mr. Chairman, I will be pleased to answer any questions you or members of your subcommittee may have.

Thank you.

Mr. **Biaggi**. We will defer questioning, but on page 2, third paragraph, last sentence, you make reference to each type of asbestos that has been shown to cause cancer and lung changes. Do they cause cancer in the same degree, or is one more dangerous than the other?

Mr. **Lemen**. There is considerable debate. Crocidolite asbestos has been shown to cause cancer to a very high degree. It seems that the cancer that it causes may tend to have a shorter latency period than for other types of asbestos. However, the types of cancer are the same that are caused by each of the different fiber types, and it would be very difficult, from the studies we have, to indicate that one type causes a greater degree of cancer than the other types. There appears to be a difference in latency and there may be differences in numbers of people that have been exposed to these types of fibers.

Mr. **Biaggi**. It has been clearly established that each of them cause cancer?

Mr. **Lemen**. It has been clearly established that each cause cancer in man.

Mr. **Biaggi**. Thank you.

Dr. Bachman.

Dr. **Bachman**. Mr. Chairman and members of the committee, I am Dr. Leonard Bachman, the Director of the Division of Hospitals and Clinics within the Bureau of Medical Services of the Health Services Administration. Accompanying me today is Dr. Robert Brandt, who is Clinical Director of our Occupational Health Center at the U.S. Public Health Service Hospital in Baltimore.

You have heard testimony today from my colleague in the National Institute for Occupational Safety and Health about the overall problem of asbestos exposure. I will focus my remarks on our clinical experience in the treatment of merchant seamen. The Public Health Service, through the Division of Hospitals and Clinics, has the responsibility of providing health care to American seafarers. This care is rendered through the eight Public Health

Service hospitals and 27 clinics to which seafarers present themselves.

The Bureau of Medical Services has no authority to enforce health standards aboard merchant vessels, but we are aware of and concerned about the asbestos-containing materials used in the construction of merchant vessels until very recently. The use of such materials presents the opportunity for exposure either chronically by such particles becoming airborne through deterioration or damage of protective coverings or by acute exposures created by the removal or destruction of protective coverings during underway repairs. Two of the most apparent disturbing effects, asbestosis and mesothelioma, are not manifested until many years later, and unfortunately, are irreversible upon detection. Therefore, the best protection of seafarers is in the prevention of exposure through the use of educational activities to alert the seafarers to the possible consequences of such exposures, the strict enforcement of known protective measures during repairs made while underway and the replacement of such materials when possible with nonasbestos-containing materials.

In our medical treatment of American seafarers over the past 4 years, we observed 13 cases of asbestosis among a universe of 49,809 patient admissions of seafarers to our facilities. The age range of these cases were from 61 to 77 years of age. This in no way implies that additional cases either do or do not exist among the seafarer populations, since admission chest films done when medically indicated were not specifically screened for early evidence of diseases suggestive of asbestos exposure. Also the universe of 49,809 reflects only the seafarers who sought care and were admitted to our facilities. Seafarers also receive care at non-Government hospitals and clinics, including union-sponsored facilities.

In addition to the diagnosed cases of asbestosis, we have also observed six cases of mesothelioma of the pleura over the last 4 years among American seafarers within the universe of the 49,809 admissions. This disease is also known to be related to exposure to asbestos fibers.

The small number of cases we have found prohibits a statement of any scientific validity as to the true incidence of this disease among seafarers as a result of shipboard exposures. Although it may appear that such cases could be related to the concerns of this committee, I must also caution that epidemiological evidence is currently not readily available to support a hypothesis that such cases are the direct result of shipboard exposures, since we do not have adequate information on such factors as the individual's lifelong employment history when not serving aboard merchant ships, their possible exposure aboard ship, their type of employment aboard the ship, and accurate airborne concentrations of asbestos aboard ship.

In view of the risks associated with exposure to asbestos-containing materials, we encourage the application of known preventive measures to reduce exposure to asbestos-containing materials aboard merchant vessels and will continue where possible to support the activities of other concerned Federal agencies in this regard.

The Division of Hospitals and Clinics continues to be concerned about insufficient knowledge of occupational diseases affecting American seafarers. In cooperation with the National Institute for Occupational Safety and Health, we have recently established an occupational health unit at the Baltimore Public Health Service Hospital to study occupational and environmentally related disease patterns among American seafarers.

The unit, which will be fully operational in about 2 weeks, is a cooperative endeavor with the Johns Hopkins Schools of Medicine, Occupational and Public Health. It is anticipated that this unit will explore additional elements concerning diseases of the chest. Because approaches developed at this center may prove useful in screening others, the Secretary asked the Assistant Secretary for Health to monitor this project and to determine whether similar projects could be undertaken elsewhere.

Thank you again, Mr. Chairman, for the opportunity to testify. I will be pleased to answer any questions you may have.

Mr. **Biaggi**. I am informed that you have just come on board, Dr. Brandt, in this new unit.

Dr. **Brandt**. That is correct, sir. In fact, I came on board on Monday.

Mr. **Biaggi**. We wish you well.

Dr. **Brandt**. Thank you.

Mr. **Biaggi**. Obviously it is some form of recognition of the problem.

The problem seems to be somewhat pervasive. Some very salient points were made. I am overwhelmed by the percentage, Mr. Lemen. You said something like 40 percent.

Mr. **Lemen**. That is correct.

Mr. **Biaggi**. Has that been subject to dispute?

Mr. **Lemen**. I think all numbers that are derived are subject to dispute, by one party or the other. But we feel this percent may be a rather conservative estimate.

Mr. **Biaggi**. I think you testified, Mr. Lemen, that you are now in conference with OSHA, trying to reconcile the difference of standards.

Mr. **Lemen**. This is correct.

Mr. **Biaggi**. Would you elaborate on this, and give us the state of affairs at this point, how much progress, and what resistance, if any?

Mr. **Lemen**. We began in September 1979 to review all the scientific literature relative to the health effects of exposure to asbestos. We worked with scientists and the Occupational Safety and Health Administration, and compiled a report which will be submitted to the Assistant Secretary for Labor, and to the Director of NIOSH sometime in the next 2 weeks. We are having a final session in the next few days to finalize this document. We have no reason to believe from our current review that the NIOSH recommendation made in 1976 was too low.

As a matter of fact, we feel that asbestos should not be used where it is not essential, and that exposure should be controlled to the very lowest possible level. That pretty much summarizes our position at this point in time.

Mr. Biaggi. You are stating your position. What about OSHA's position?

Mr. Lemen. This is a joint document prepared by some NIOSH scientists and OSHA scientists. However, I cannot say what OSHA's position is. They are testifying later today.

Mr. Biaggi. I am aware of that. I was just curious as to how far along you have gotten in your discussions, and what seems to be the trend.

Mr. Lemen. The recommendations made in our joint working group have been agreed upon by both the OSHA participants as well as the NIOSH participants. But I cannot say how the Assistant Secretary or the NIOSH Director will react to our recommendations.

Mr. Biaggi. What educational medical surveillance and exposure control practices would you recommend to deal with the problem?

Mr. Lemen. Almost certainly there are a variety of educational tools. First of all, I think that proper working practices, when working with asbestos——

Mr. Biaggi. What does that mean?

Mr. Lemen. Proper work practices would mean the use of protective equipment when working with asbestos, such as respirators, when exposure to asbestos is occurring, protective clothing, changing of clothing, and not wearing the clothing from the work site to the place of residence, showering after working with asbestos, cleaning one's hair, encouraging asbestos workers who smoke not to smoke. Taking these types of preventive measures, I think, would help in reducing the risk of disease. But the only true measure, as the people from the Public Health Service hospital have stated, is through prevention, that is, through elimination of exposure to asbestos. Maybe you have something to add on that?

Dr. Bachman. We have had some discussion on the value of screening, doing screening procedures. The screening procedures that detect the disease, the actual exposure had occurred 20 or 30 years before. However, you can detect thickening of the pleura, and sometimes pleura thorax, and that can alert people that they have been exposed, and those people, for example, should be particularly instructed to stop smoking, if they smoke, and to prevent any future exposure. So there probably is some value in doing medical screening, but the value would be very limited.

Mr. Biaggi. How soon does that thickening of the pleura manifest itself?

Dr. Brandt. The thickening would take—the shortest period of time would be about 8 years. Ordinarily it is 15 to 20 years after exposure.

Mr. Biaggi. That is one of the real problems with this particular element. Substitutes have been recommended.

Has anyone checked on what effect the substitutes would have?

Mr. Lemen. We have looked at a variety of the substitute materials, such as fiberglass, mineral wools, and clay fibers. Fiberglass has not really been into commercial market in wide use for a sufficient time so that we could really look at latency periods. Fiberglass was used in larger size fibers until about 1960, and about 1960 these fiber sizes were reduced, in some cases, similar to what we find for the fiber sizes of asbestos. We did show in the one study our Institute has done that there was an excess of nonmalignant respiratory disease. We have not seen at this point in time any excesses of cancer. This is not surprising since we really have not observed persons exposed over a long enough latent period to determine if cancer would be a hazard.

I might say that Dr. Stanton at the National Cancer Institute has done exclusive animal studies and has shown that it really is not a matter of what the fiber is, it is a matter of what the fiber size is. He has shown in animal studies that fiberglass, mineral fibers and other fibers that are nonasbestos have caused cancer in laboratory animals. There is no reason for us to believe, when we have fibers of certain dimensions and certain lengths, that we will not see cancer occurring in humans where they are occupationally exposed to these substitute materials.

Mr. BIAGGI. With relation to shipboard personnel, has the Public Health Service undertaken educational programs?

Mr. LEMEN. I would have to defer that question.

Dr. BACHMAN. At this time we have a seaman's health improvement program which is about 1½ years old. It has as its main responsibility to provide educational materials to American seamen. Part of the impact of that is antismoking programs and some educational materials to alert seamen to be aware of occupational hazards. We are hoping that our Baltimore center will help to energize this program even greater and provide better materials for us and methods to reach the American seamen for education programs.

Mr. BIAGGI. What about the Coast Guard?

Dr. BACHMAN. The Coast Guard have their own medical program. I believe they do have a program in this area, but I am not completely knowledgeable about it.

Mr. BIAGGI. But you do not have a special program for Coast Guard personnel?

Dr. BACHMAN. We provide hospital services and some of our clinics provide services to the Coast Guard. But the Coast Guard has a medical program that provides the primary health services to their members.

Mr. BIAGGI. You responded to one question that you give the seafarers some material.

What does that mean? My own feeling frankly is that sometimes you have to embark on a program and you say you cleared the program and you have material lying about in the reception room. If that is what it consists of, I tell you it is practically worthless.

Dr. BACHMAN. One big aspect of the program is an 800 number. That is a national hotline that is advertised to seamen that will allow them to contact that number and get a variety of types of information about how to use our clinics, where the nearest clinic is, all sorts of health information. That program has been very complicated to set up. It has been cleared by most levels of the Department now, and I am expecting that the number will be advertised very shortly, maybe by early spring. We have already hired the help in the Nassau Bay Hospital where the national headquarters will be, and we hope that the 800 number will be the center around which we provide lots of information to America's seafarers. I agree with you that just printing up some brochures to put in waiting rooms is not a very effective way to reach seafarers.

Mr. **Biaggi**. I recall the time a number of decades ago when people were concerned and the Government was concerned about the proliferation of venereal diseases, and we knew about venereal diseases, and every kid in town at one time or another made some mention of it and was concerned about it.

But you know the shock treatment that was clearly demonstrated with some films left a never to be forgotten impression. I think that did more for the diminution of venereal disease in my generation than anything, at least made people exercise greater care. There is no question that you have prime examples of the last stages of lung cancer caused by asbestos. Given the grave nature of the problem as well as the magnitude of it, it would seem to me that we should embark on a rather enlarged version of education, using every tool we have, whether it be shock, certainly constancy, realizing you are dealing with seamen.

Seamen are pretty rough and ready guys, and I doubt if they will read the material. If they read it, they will care less. I do not know how many have stopped smoking as a result of it, but if you lay it out there in blood, that is what you are doing in real terms of life and horrible consequences, I think you will make greater impact and have greater effect. That is on prevention, the educational side.

Certainly screening is important, I feel. I do not think any one of them is going to do it alone, but a comprehensive approach to this problem should have a marked effect. Surely I agree ultimately you should function in an asbestos-free atmosphere.

Dr. Brandt, do we know whether any other elements contribute to lung cancer? Have we isolated this cause?

Dr. **Brandt**. No, sir. There has been research and speculation on whether or not the fibers themselves carry heavy metal elements into the lung and cause cancer. It has not definitely been proven. The only proven cofactor in cancer with asbestos is cigarette smoking at this time.

Mr. **Biaggi**. Mr. Stack.

Mr. **Stack**. I would like to commend the chairman for conducting these hearings. I think you have raised a very significant point in the integrated safety and improvement of health among those who are employed on merchant vessels, and certainly among the operators and men who serve on the Coast Guard cutters and Navy ships.

In listening to the testimony this morning as far as we have gone, it raises questions in my mind. Certainly I would like to know more and perhaps this will be brought out as we go on today about the economic implications of barring the use of asbestos for the uses to which it is presently put. The question also arises on what we may bar for future use, the question of removing it where it has already been employed. These are questions that I think we have to know something about.

The chairman made a good point in regard to substitute materials, how certain are we that they will be any more safe than asbestos. If, indeed, we are able to increase fiber size of asbestos, might it not work out as effectively as other materials? The reason

I raise the question is, I have no idea personally of the economic implications to business and industry in general of barring use of asbestos. Also I have questions that arise from the control of the studies as you might obviously have in that we know that at certain periods people serve aboard ship—I myself recall on Coast Guard cutters in which I served, we had asbestos properly covered—at least we believed so at the time, for fire prevention, for the ship, and during the Second World War, but at the same time I do recall also that shortly after the war, when I was at least peripherally involved in the building business, that we used asbestos for insulation in the home, that we simply laid the asbestos in the attics where it was rather free to circulate.

I think all these questions present problems that the medical fraternity has carefully considered. I think the suggestion we absolutely bar asbestos might be very drastic.

It seems to me that you have made statements that we can diminish the hazard by making those who are exposed aware of the problem. That is quite evident.

An important point I see is that aboard ships where asbestos has been installed previously, personnel can be made aware through these methods, some of which have been suggested by the chairman. Personnel certainly should be made very much aware of the danger, particularly when repairs are being effected by personnel aboard ship. That asbestos is a dangerous material is rather obvious. It would certainly appear that we have developed significant information on the hazards to health of the cancer-causing nature of smoking, but yet we know that a great many people, even though they are fully aware of the dangers, still continue to smoke. So I think that the chairman's point is well taken.

We have to be rather dramatic in the manner in which we bring this danger to the attention of those who are involved. I would hope that we will be able to obtain some information, if we have not already done so, Mr. Chairman, about the economic implications of the suggested ban on the use of asbestos and also its removal and so forth at some point during these hearings.

I thank you, Mr. Chairman, for allowing me to comment.

Mr. **Biaggi**. Thank you, Mr. Stack. We expect to hear from the shipbuilding industry, and they may have some comment on that later expression.

Mr. Hughes.

Mr. **Hughes**. Thank you, Mr. Chairman.

First, I just want to congratulate you on focusing attention on this most important issue. I only have one question of Dr. Bachman.

In your testimony, doctor, you indicate that there were only some 13, as I recall, individuals out of some 49,000, if I recall, where asbestosis was detected. You indicate further on in your statement that there was not a sufficient case history for you to draw any particular conclusion from those incidents of asbestosis, and you are now engaging in some studies, apparently in conjunction with the National Institute of Occupational Safety and Health.

My question is whether you have endeavored to go back to those 13 case histories and tried to determine where, for instance, on-board ship they might have served and where they might have been exposed to asbestos during their nonseafaring days.

Have you attempted to do that?

Dr. **BACHMAN.** That data comes from our nationwide data that are sent in by the hospitals, just from a statistical point of view. In order to get at each case we would have to go to each individual hospital and pull their chart. Presumably as the Occupational Health Center begins to gear up to study this disease, they will have access to our total records system and will be going back over those cases and others.

In addition to that, we have under development a much more sophisticated data system which is in place in three of our hospitals, Seattle, San Francisco and Nassau Bay, which will enable us to pick out diagnosis and go back to individual cases much easier than we can with our existing and older information systems.

Mr. **HUGHES.** Let me see if I understand your answer.

Are you saying it is not possible for you to go back and look at those individual cases?

Dr. **BACHMAN.** Very tedious. We have statistics where they came from but not their name. We would have to go to each hospital——

Mr. **HUGHES.** Statistics are important, but it would seem to me that the case study would be even more important.

Dr. **BACHMAN.** I agree with you.

Mr. **HUGHES.** Has an effort been made to go back and identify those individual situations to try to develop a case history?

Dr. **BACHMAN.** These data were pulled to try to give some information at headquarters for this testimony, and to attempt to go back will be the responsibility of the Occupational Health Center, and they would do that in a systematic way.

Mr. **HUGHES.** I would think since HEW is very interested in the subject also, you would be interested in any case history that might be developed.

Dr. **BACHMAN.** Absolutely. Our clinical system of 800 hospitals and 27 clinics that are—for example, our clinics deal with a million visits a year and are a rich source of data that would enable us to study this disease.

That information system at the moment is not as sophisticated as it needs to be to really get at this data.

Mr. **HUGHES.** Thank you, Mr. Chairman. I think it is pretty obvious that data is important. We really cannot draw very much by the way of conclusion from statistical data. Individual background studies certainly would serve us a lot better than just raw data which is not very meaningful.

Thank you, Mr. Chairman.

Mr. **BIAGGI.** I think there is agreement on that point. I think it might be appropriate at this point to recall to mind that Dr. Jones of Tulane University, professor of medicine, and his testimony stated with 6,671 films, and he has classified 19.8 percent of all these films, specified pleural abnormalities. It is an important figure as 40 percent is an important figure. I do believe we have a comprehensive approach to this problem, and that is one of the purposes of the hearing, to alert everyone to the need for greater attention and greater effort.

Which provides the greater hazard, flaking and deterioration or ripout and repair on ship?

Mr. LEMEN. Certainly the ripout and repair would probably generate the highest dust levels or fiber counts. But constant flaking of the material can also provide a continual exposure. With ripout and repair, you have generally one-time exposure that occurs over a short period of time. With the flaking, you have a continual exposure occurring over a long period of time, so the potential for exposure in both, could be, in some cases, equal. But the highest concentrations would come with the ripout and repair.

Mr. BIAGGI. The hazard that comes to my mind—I do not have any particular special expertise in this area, but with relation to ripout and repair, there might be a greater effort to dress properly perhaps while you are doing it, whereas in flaking it is imperceptible, and it is generally an accepted condition and you are functioning without the usual protection, which some might construe to be even more dangerous because you are constantly exposed without any protection. Let me pursue that a little further.

You mention outerwear, to dress properly. Is the state of the art in that area sufficient to provide the kind of protection that we need, is it the optimum?

Mr. LEMEN. Well, the optimum protection is to enclose the individual in air supplied respirator with a nonpermeable suit of clothing that asbestos cannot get through. Certainly that is capable of being developed.

Mr. BIAGGI. Do we have it now?

Mr. LEMEN. It does exist.

Mr. BIAGGI. Is it being used?

Mr. LEMEN. In some cases in industry, yes, it is being used. I cannot speak whether it is being used in the shipyards. One point I wanted to make about your reference to flaking is the concern HEW has on the school situation where you have flaking from ceilings in the public school system, and that certainly concerns us. In a ship that flaking can be exaggerated by the fact that ships are moving around. They do not sit still like a school, and the constant jarring and moving of the ship can cause the flaking to be even greater than what we have seen in the school systems where we feel there is a real need for concern to health.

Mr. BIAGGI. Would a one-time massive exposure be dangerous?

Mr. LEMEN. As I stated in my testimony, we do not know a level below which a person would not develop the disease. In the British Tumor Registry, there have been case reports of individuals developing mesothelioma after only 1 day of exposure. Dr. Selikoff reports excess of lung cancer in his studies to persons exposed less than 3 months. We do not know what level is safe.

Mr. BIAGGI. Further questions?

Mr. BRUCE. I have one question.

Mr. Lemen, in what may be an isolated situation, but a very real situation nevertheless, in the freshwater of Lake Superior, asbestos occurs from many locations and sources both natural and from mineral tailings, and it is from the freshwaters of Lake Superior that commercial vessels draw their potable water without filtering. Are you familiar with that situation?

Mr. **Lemen**. There is a lot of concern which has been addressed to this, from the tailings that occur from plants in the Duluth, Minn. area and where the waters of the lake have been contaminated. Studies have been done on the populations looking at the health effects and studies have also been done looking at what happens to the fiber once it gets into the body. Animal studies and human studies have now shown asbestos in the urine. We have seen in some studies that asbestos will penetrate the gastrointestinal lining. Certainly asbestos in potable drinking water is a serious problem. I do not think as yet we really have statistics in to tell you how serious that problem could be.

Mr. **Bruce**. On behalf of Congressman Young, Dr. Bachman, I will ask these few questions.

The Marine Index Bureau maintains statistics regarding seafarers' illnesses. Have its records been checked and compared to your data regarding incidents of asbestos related problems?

Dr. **Bachman**. We are just developing a relationship with the Marine Index Bureau, and we have not specifically checked their programs with ours in this field.

Mr. **Bruce**. Can you say whether the presence of marine physician's assistant or equivalent aboard a vessel would be of any benefit at this time in testing and monitoring conditions aboard ship?

Dr. **Bachman**. Well, it seems to me that attention to preventive health and health concerns on a ship would be valuable. Whether or not that would have to be through a physician's assistant aboard ship or designating or doing it with some other kinds of personnel I would not like to just limit it to just a physician's assistant. But I think we should pay much more attention than we now pay to health at the workplace, not only on ships, but throughout the place where we work, all of us work.

We do not pay anywhere near enough attention to the concerns of health—after all, we are at our workplace most of our lives, 8 to 10 hours a day. The attention we pay to this very important area generally in the United States is too little. I think that certainly a dangerous place like a ship, a lot could be gained by paying more attention to preventive health programs on a ship.

Mr. **Bruce**. You referred to a ship program which is known as the seafarers' health improvement program. There is one work group established to address safety aboard ship.

Can you say what the degree of response has been, if any, to identify asbestos problems by the Coast Guard, vessel operators, and labor, all of whom make up the composite work group?

Dr. **Bachman**. And us. We are bringing the group together. Well, we have had a lot of better interchange, I think, since the ship program. We are talking to one another in ways that we did not talk before. There have been training programs done to upgrade the training of health personnel that are aboard ship.

Last summer we conducted such a program for instructors up in Maine. I would be less than candid if I did not say that there is still lots of differences among the various groups in looking at safety aboard the ship. The Coast Guard has one perspective. They have responsibility to develop regulations. We have one perspective in that we have to treat victims and we have a few of it. The unions represent their employees. They are concerned, of course, for safety of their employees, and the industry is interested in the safety of their employees as well as in the economic aspects of having a safe ship.

I think we are all interested in developing a good program. We sometimes come at this from our different responsibilities and we have not solved all the problems yet. There are some differences, but I am optimistic that the ship program will be the catalyst to improve that situation tremendously.

Mr. **Bruce**. Thank you.

Mr. **Biaggi**. Thank you, gentlemen. There is a uniqueness about asbestos as a carcinogen. One, it is all pervasive, given what we know about it today and, two, unlike usual medical approaches, we have observed in humans and now we are going back to laboratories and dealing with animals, at least it has been recognized. That recognition has to be as pervasive as the ailment.

I am hoping these hearings will be a signal to all of the components concerned that we have a huge undertaking before us.

Thank you very much.

Mr. **Lemen**. Thank you.

Mr. **Biaggi**. Mr. Donald MacKenzie, Regional Administrator, OSHA, Department of Labor, accompanied by John Hynan, Deputy Assistant Solicitor.

STATEMENT OF DONALD MacKENZIE, REGIONAL ADMINISTRATOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, DEPARTMENT OF LABOR, BOSTON, MASS., ACCOMPANIED BY JOHN HYNAN, DEPUTY ASSOCIATE SOLICITOR OF LABOR FOR OSHA; AND BAILUS WALKER, DIRECTOR, HEALTH STANDARDS PROGRAM

Mr. **MacKenzie**. Mr. Chairman and members of the subcommittee, I am Don MacKenzie, OSHA Regional Administrator in Boston. With me are John Hynan, Deputy Associate Solicitor of Labor for OSHA, and Bailus Walker, Director, health standards program.

I will begin by describing the nature of the hazard faced by those employees who are exposed to asbestos in the course of their employment, and particularly the nature of the hazard faced by seamen who work in ships built prior to 1970. Mr. Hynan will discuss OSHA's jurisdiction, with respect to both merchant seamen and Federal employees, such as the Coast Guard and the Navy. I will then describe some joint efforts we are undertaking with the Coast Guard to promote safe and healthful working conditions for those employed at sea.

It is OSHA's belief that serious asbestos exposures may exist on many ships. The most significant problem is asbestos lagging used around pipes and boilers as an insulator or fire retardant. Although many of these pipes are visible throughout the ship, the primary problem areas are boiler and engine rooms. However, the potential for other sections of a ship to become contaminated is great if individuals directly exposed to asbestos are allowed to move about the ship with contaminated clothing. We also believe that a variety of shipboard conditions may contribute to the deterioration of asbestos lagging. Our knowlgdge about these factors is not complete, but it is certain that with age, the pipe lagging tends to flake and to become airborne and it is subsequently taken into the lungs. A significant hazard is also created during emergency "rip out" operations at sea which require the removal of asbestos in order to perform routine shipboard maintenance operations.

Asbestos on ships presents a unique problem. First, asbestos is generally integral to ship construction and it cannot be readily removed or controlled. Second, emergency repairs at sea often create asbestos exposure problems which cannot be easily resolved. Third, the motion of the ship at sea plays a significant role in causing flaking asbestos to become airborne. And, finally, once airborne, the small confined spaces of a ship may result in greater concentrations of fibers than would occur in similar situations under normal docked conditions.

OSHA has requlated asbestos exposures from its inception and it has mandated progressively more stringent standards. Since 1971, OSHA's asbestos requirements have gone from a required 12 fibers per cubic centimeter of air to a proposed 0.5 fibers per cubic centimeter of air. The first OSHA standard—published May 29, 1971—was based on a 1969 Federal standard, issued under the Walsh-Healey Public Contracts Act. It established an exposure limit of 12 asbestos fibers longer than 5 microns per cubic centimeter of air. When research revealed further hazardous effects of asbestos, more rigorous standards were promulgated. The 1972 standards established an 8-hour time weighted average concentration exposure limit of 5 fibers longer than 5 microns per cubic centimeter of air, and a ceiling limitation against any exposure in excess of 10 such fibers per cubic centimeter. Effective July 1, 1976, the standard further reduced the 8-hour time weighted average to two such fibers per cubic centimeter, and that is our present standard.

Two fibers of asbestos per cubic centimeter of air is 2 million asbestos fiber per cubic meter of air. Over an 8-hour period, an individual breathes from 6 to 10 cubic meters of air. Therefore, during a single 8-hour workday, a maximum of 20 million asbestos fibers could be inhaled under our standard. On the basis of evidence indicating that this level is too high to protect workers against asbestosis, OSHA has proposed to reduce the present allowable limit to a 500,000 fibers per cubic meter time weighted average for 8 hours. The National Institute for Occupational Safety and Health (NIOSH) has recommended reducing that even further to 100,000.

I should note right away that any standard which is based on an 8-hour day, 40-hour week exposure limit, is not really suitable for shipboard work environments. Shipboard work hours are sporadic and may be longer than the typical 8-hour day, 40-hour week schedule regulated by most standards. Seamen live and work in the same environment and thus could be exposed after their regular working shifts. Any proposed standard for shipboard employees should, therefore, take these factors into consideration.

The standards I have mentioned have focused on protecting workers from asbestosis. We now have a substantial body of information that indicates that asbestos causes cancer, as well, and in this regard, there is no safe level of exposure. OSHA's recent cancer policy, which represents a tremendous stride forward in our efforts to protect workers from the hazards of cancer causing substances, establishes a system for identifying and classifying carcinogens, based on the nature and extent of the scientific evidence of their cancer-causing potential. It also provides a standards-setting procedure that will guide future OSHA regulatory activities, including the annual publication of a candidates list of potential occupational carcinogens. The first candidates list is to be published in July 1980, and we expect asbestos to be on that list.

OSHA now has efforts underway to determine what level of asbestos exposure provides maximum protection and is also technically feasible, in light of the mass of scientific and technological information which has become available in recent years. A working group of OSHA and NIOSH representatives, organized to analyze available information on asbestos and its health effects, has nearly completed its work and is expected to submit its recommendations to the Assistant Secretary of Labor for OSHA and to the Director of NIOSH within the next months.

Before I describe our role in applying this information toward the protection of seamen, I would like to have Mr. Hynan describe some jurisdictional considerations that need to be fully recognized in evaluating what we can do in this regard.

Mr. **Hynan**. Mr. Chairman, I will be brief.

Mr. Chairman, the Occupational Safety and Health Act covers all private-sector employers in the Nation who have one or more employees, including maritime employers. Each employer must comply with OSHA standards and in the absence of an OSHA standard, each employer must comply with the act's express general duty provision to provide employment that is free from recognized hazards likely to cause death or serious physical harm. The act does not generally cover Federal employees, such as Coast Guard and Navy employees, but there is a section in the act, section 19, which provides special arrangements to protect Federal employees from on-the-job hazards. I will come back to the issue of Federal employee protection later.

While OSHA covers all employers in all workplaces, Congress included in the OSHA Act a provision to avoid duplication of effort between OSHA and other Federal agencies, such as the Coast Guard. That provision is in section 4(b)(1) of the OSH Act, and it provides that the OSH Act does not apply to working conditions of employees with respect to which another Federal agency exercises statutory authority to issue regulations affecting occupational safety and health.

Further, the OSH Act imposes geographical limitations on our authority. Under section 4(a) of the act, OSHA may be applied only to workplaces located in a State. This includes the waters 3 miles seaward from the land, but excludes the high seas. The one exception to this rule is that OSHA does not apply to work facilities used for exploration of excavation in connection with the lands of the Outer Continental Shelf.

As I said earlier, Federal employees are covered under a special program under the OSH Act. Section 19 of the act provides that each agency head shall be responsible for setting up and maintaining an occupational safety and health program for the protection of

Federal employees in the agency. The existing Executive order implementing section 19 requires agency heads to observe the Secretary of Labor's guidelines which set forth the basic program elements each agency is expected to include in its program. Among those guidelines, it is provided that agencies adopt the OSHA standards that apply to the private sector so that the Federal agency employees will have the degree of protection prevailing in the case of private sector employees. Section 19 of the act does not provide, however, for civil or criminal penalties in the Federal employee sector. Instead, the Secretary of Labor evaluates the various Federal agencies to determine whether those agencies have included all the elements set forth in the Secretary's guidelines and whether the agency programs are otherwise effective in providing protection to the agency's employees. The Secretary issues a report to the President setting forth the evaluations and any recommendations the Secretary has developed as a result of his evaluations. The administration has a proposal under consideration to strengthen this program and is committed to that goal.

Let me sum up my brief presentation by applying these general principles of coverage and interagency relationships to the issue of concern to this committee; namely, the protection of merchant seamen from workplace hazards.

A privately owned vessel is a workplace and if that vessel is within the territorial waters of the United States, that vessel is covered by the OSH Act, and OSHA may inspect and otherwise enforce the act aboard those vessels. If we discover on such a vessel a violation of the OSH Act with respect to a working condition addressed by a Coast Guard regulation, section 4(b)(1) of OSHA provides that we may not issue a citation for that violation. The Coast Guard has not issued an asbestos standard enforceable against private employers, and therefore the OSHA asbestos standard is presently applicable in the case of merchant seaman—but again only while they are within the U.S. territorial waters.

As to Federal employees who are seamen; namely, officers and enlisted personnel of the U.S. Coast Guard, we understand that the Coast Guard has issued an asbestos standard and related directives to protect those personnel.

That concludes my outline of OSHA coverage, as well as my brief discussion of the OSHA and Coast Guard interface as governed by section 4(b)(1) of the OSH Act. Mr. MacKenzie will now discuss the practical implications of these legal rules.

Mr. MacKenzie. Mr. Chairman, inspecting ships for asbestos presents some unique problems for OSHA. First, ships are not usually in port long enough for proper environmental samples. And, as stated earlier, most asbestos exposure takes place on the open sea where asbestos, in a flaking state, may be more susceptible to becoming airborne. The engine is in operation, and normal shipboard operations, such as pressure from steam pipes, air currents caused by the ventilation systems, movement of the crew about the ship and normal vibration and movement of the ship over the water are the greatest contributors to airborne asbestos. A significant hazard is also created during emergency "rip out" operations at sea which require the removal of asbestos in order to perform routine shipboard maintenance operations. To take proper air and personnel samples would require a team of hygienists aboard a ship for at least 1 week while it is underway. This would present both resource and logistical problems for us. These problems would, even in the absence of the jurisdictional limitations mentioned by Mr. Hynan, preclude us from effectively protecting the safety and health of seamen aboard ship.

While our legal and hands-on roles may be limited, Mr. Chairman, we believe our efforts are nevertheless of direct value to seamen. Our standards proposals, and the record they generate, are of great importance in raising the level of consciousness about the potential hazards of asbestos for all employees. They also provide examples which other agencies may adopt, for their own employees, and for those others to whom their jurisdiction extends. In addition, we can provide technical assistance in the enforcement of standards, including monitoring techniques, and engage in joint activities.

While some problems exist, OSHA and the Coast Guard have made progress over the past several years toward a mutual understanding of the safety and health issues of concern to seamen. In 1978, an OSHA/Coast Guard task force on worker safety and health was established. A significant achievement of the task force was the development of a package of OSHA safety and health standards applicable to inspected vessels. These standards are now under review by the Coast Guard for possible future promulgation for employee protection on inspected vessels. This package of standards included OSHA's 1975 proposed asbestos standard. Also, a formal agreement is in final clearance in which OSHA and the Coast Guard will work together for the development of health standards, such as standards for protection of seamen from asbestos exposure. Also in clearance is a draft interagency agreement on the investigation of marine casualties. This agreement will provide clarification of the agencies' respective responsibilities, a first step toward a long-term objective of a joint inspection-resource utilization program. Preliminary discussions have also taken place regarding a program of cross-training for OSHA and Coast Guard inspectors involved in the joint inspection-resource program.

Technology now exists to reduce asbestos exposures sharply, but as I noted before, there is no known safe level of exposure for any carcinogen. We therefore strongly encourage programs of removal and replacement where possible. We also believe that training and education is essential to an effective asbestos control program. Employers and workers must be made aware of these hazards and methods of control.

OSHA has educational grants with 82 nonprofit organizations; 46 of these organizations are conducting asbestos education programs as one component of their total occupational safety and health efforts. These grants represent an OSHA commitment of $11 million for fiscal year 1980. The President has proposed increasing this level to $13.9 million for fiscal year 1981. Also, OSHA, under a grant from the National Cancer Institute, is developing an 18-month media campaign to alert asbestos workers to the hazards. The program will include public spot TV and radio announcements, a slide show, magazine and transportation ads, a training film, six regional workshops to provide direct guidance to organizations such as unions and associations, and a campaign to encourage movie producers and TV and radio programers to include asbestos as subjects for their programs. OSHA is also working with EPA to produce written materials for vocational and technical schools to educate faculty and students in the hazards of asbestos.

Mr. Chairman, this ends our prepared statement. We will be happy to respond to any questions the subcommittee may have.

Mr. **Biaggi.** Thank you, gentlemen.

On page 4, you make two comments. One, that seamen live and work in the same environment and the standards should not be the same as in other areas. I think it is a point well made. Then, at the top of the page, you say the present allowable limit is 500,000 fibers, and NIOSH recommends reducing it even to 100,000.

We have heard this morning your testimony and the preceding witnesses testified that you are now in consultation with one another in order to develop some agreed upon standards. One, if you can, what do you think the agreed upon standards will be and, two, what is your response to the recommendation of NIOSH in reducing 500,000 to 100,000?

Mr. **Walker.** Mr. Chairman, I cannot specifically say at this time exactly what the standard will be because the final report from NIOSH-OSHA work group has not been submitted to the Secretary. However, I think we are in agreement with NIOSH's recommendation that we should reduce the level to the lowest feasible level that can be achieved in the workplace. There is not disagreement there.

Mr. **Biaggi.** The operative word there is feasible. What does that mean from your experience?

Mr. **Walker.** Both from technological as well as economic standpoint. We are evaluating both of those now.

Mr. **Biaggi.** I am interested in the relationship you are having with the Coast Guard. From what you have testified to and the Coast Guard will be testifying shortly, the Coast Guard is doing something about its own personnel, but apparently nothing with relation to seamen on merchant marine.

Is that a fair statement, I mean currently?

Mr. **MacKenzie.** I believe the Coast Guard has adopted a standard for those people employed by the Coast Guard. They are in agreement and working with us on adopting a standard under 4(b)(1) for applying them across the board to employees of employers. They are working with us at this particular time.

Mr. **Biaggi.** They have not issued any regulation with relation to asbestos control at this point?

Mr. **MacKenzie.** At this present time, for the private operators of ships, they have not adopted our standard.

Mr. **Hynan.** I understood, but the Coast Guard is a better responder to this question, I understand the Coast Guard does have a proposal for asbestos control for the private sector.

Mr. **Biaggi.** The next observation is really one that we all, I expect, I can anticipate the response, but for the record you would recommend that the Coast Guard do this, have a regulation for the merchant marine sector?

Mr. **MacKenzie.** Yes, sir, I believe they have the expertise in operating of ships. They have much better access to them than we have. They have equipment to take them out to these vessels, such as in the roadsteads of Baltimore, roadsteads of New York, where much of this lagging and ripout repair work is done.

Mr. BIAGGI. Mr. MacKenzie and your associates, we have a number of questions prepared for you, but your statement was so comprehensive you have obviated the need for the questions.

Mr. MACKENZIE. I thank you.

Mr. BIAGGI. I want to thank you. We have accomplished our purpose in an expeditious fashion and obviously you have given the statement a great deal of preparation and you were right on target and we appreciate it. Thank you very much.

Mr. Hughes.

Mr. HUGHES. Thank you, Mr. Chairman. I have no questions.

Mr. BIAGGI. Mr. Bruce.

Mr. BRUCE. I have just one question, Mr. MacKenzie.

I noticed that the proposed package of standards that you are developing with the Coast Guard are applicable only to inspected vessels. Is this to say the problem is minimal with respect to uninspected vessels?

Mr. MACKENZIE. No, I would not say they are minimal. We have had some problem with uninspected vessels on inland waterways, et cetera. What we are looking at is where the Coast Guard is there and has access to the location, and I would not say that the problems are much different.

Mr. BIAGGI. Thank you very much, gentlemen.

Captain Montoya, Director, Environmental Protection and Occupational Safety and Health Division, Office of the Chief of Naval Operations; Captain Gibson, Assistant for Environmental Quality and Occupational Safety and Health Programs, Naval Sea Systems Command; Captain Bellanca, Head, Occupational Medicine Branch, Bureau of Medicine and Surgery; and Mr. John Machtsheim, Assistant Administrator for Shipping and Ship Operators, Maritime Administration, Department of Commerce.

STATEMENT OF CAPT. BENJAMIN F. MONTOYA, DIRECTOR, ENVIRONMENTAL PROTECTION AND OCCUPATIONAL SAFETY AND HEALTH DIVISION, OFFICE OF THE CHIEF OF NAVAL OPERATIONS, ACCOMPANIED BY CAPT. D. B. GIBSON, ASSISTANT FOR ENVIRONMENTAL QUALITY AND OCCUPATIONAL SAFETY AND HEALTH PROGRAMS, NAVAL SEA SYSTEMS COMMAND; CAPT. J. J. BELLANCA, HEAD, OCCUPATIONAL MEDICINE BRANCH, BUREAU OF MEDICINE AND SURGERY

Captain MONTOYA. Good morning, Mr. Chairman. I am Capt. Benjamin Montoya, Civil Engineer Corps, U.S. Navy. I am the Director of the Environmental Protection and Occupational Safety and Health Division in the Office of the Chief of Naval Operations. My colleagues, Capt. Joseph Bellanca, Medical Corps, U.S. Navy, and Capt. David Gibson, U.S. Navy from Naval Sea Systems Command, and I am pleased to testify before your subcommittee on the Navy's asbestos control program.

I have submitted a prepared statement for the record and propose to address the highlights in this oral statement.

Mr. BIAGGI. Without objection, so ordered.

[The following was received for the record:]

BIOGRAPHY OF CAPT. B. F. MONTOYA, CEC, USN

Benjamin F. Montoya grew up in the Coachella Valley in Southern California, was commissioned Ensign, Civil Engineer Corps, upon graduation from the U.S. Naval Academy in 1958. The rank of Captain was attained 1 October 1979.

Assignments have included two tours as a Naval Activity Public Works Officer at the Naval Construction Battalion Center, Port Hueneme, California (1962–65) and the Naval Station, San Juan, Puerto Rico (1968–70). Was Resident Officer-in-Charge of Construction at the Long Beach Naval Shipyard (1960–62) and served with Mobile Construction Battalion Three (1965–67) on two deployments to Vietnam.

Since 1970 has been involved with the Navy's Environmental Protection Program at the Western Division of the Naval Facilities Engineering Command, San Bruno, California (1970–74), at Headquarters, Naval Facilities Engineering Command, Alexandria, Virginia (1974–77) and currently on the staff of the Chief of Naval Operations as the Director, Environmental Protection and Occupational Safety and Health Division.

In addition to a BS from the U.S. Naval Academy, received a Bachelor's degree in Civil Engineering from Rensselaer Polytechnic Institute (1959) and a Master of Science degree in Sanitary Engineering from Georgia Tech in 1968. Will complete work on a Juris Doctor degree at Georgetown University Law Center in May 1980.

Personal decorations include the Bronze Star medal, the Meritorious Service medal, the Navy Commendation medal and the Navy Achievement medal.

Captain and Mrs. Montoya, the former Virginia Cox, live in Woodbridge, Virginia with five of their seven children.

PREPARED STATEMENT OF CAPT. B. F. MONTOYA, CEC, U.S. NAVY, DIRECTOR, ENVIRONMENTAL PROTECTION AND OCCUPATIONAL SAFETY AND HEALTH DIVISION

Mr. Chairman and distinguished members of the committee, I appreciate this opportunity to meet with you to explore asbestos-related matters of concern to all of us, as well as to much of the citizenry. In addition to providing as complete response as possible to your specific concerns, the thrust of my comments will be to present a broad background statement on asbestos and relate this to the strong Navy policies which are in effect today.

BACKGROUND

Asbestos is a term applied to a group of fibrous minerals such as amosite, chrysotile, crocidolite, etc., composed of silicates of aluminum, magnesium, and other metals. It has been estimated there are more than 3000 different product applications containing asbestos. Because of its fire and heat resistance characteristics, asbestos has been extensively used in industry and in the Navy as insulation lagging applied to propulsion plant components, steam and hot water piping. In addition to thermal insulation, a few typical Navy applications of asbestos containing material include packing and gaskets, insulating blankets, and floor tile.

Asbestos is recognized as a major health hazard. Exposure occurs by inhalation of asbestos fibers produced as a fine dust when asbestos is handled during transportation, fabrication, installation, or removal (rip-out) operations. Inhalation of small amounts of asbestos fibers can lead to health impairment particularly in conjunction with smoking.

A product containing asbestos does not necessarily pose a risk of exceeding the Navy permissible personnel exposure level to asbestos fibers. However, in some product applications, such as thermal insulation, asbestos fibers are loosely bound, and a substantial number may be dislodged and become airborne during fabrication, installation, use or removal. In other applications such as valve packing, the asbestos fibers are firmly bound or "fixed", and are not likely to become airborne in quantities in excess of the Navy Medical Surveillance Action Level, defined in OPNAVINST 6260.1A (AUG 78), under normal use or removal. Removal of asbestos thermal insulation is a critical and potentially serious operation unless properly controlled by the use of special work procedures

ASBESTOS IN NAVY SHIPS

The Navy has used asbestos as a thermal insulating material in Navy ships since the mid-1930's. The major application has been as an insulating casing around steam boilers and as insulating lagging wrapped around propulsion plant components and steam and hot water piping. It is this thermal insulating material that presents the greatest potential for airborne asbestos fiber concentrations which are hazardous.

In addition to thermal insulation, other shipboard asbestos applications include those products which can be found in general use by industry and in homes and office buildings. Floor tiles, various gaskets and valve stem packing materials and galley range insulation are just a few examples. However, this asbestos is in a bonded or contained form and routine careful handling would preclude emissions of potentially hazardous levels of airborne fibers.

NAVY ACTION TO ELIMINATE ASBESTOS FROM SHIPS

The Navy has taken a number of actions to eliminate or reduce the amount of asbestos in its ships. These actions are related to new ship construction specifications or during the repair and overhaul cycles of existing asbestos containing ships. I will discuss new construction ships first.

Coincident with the 1971 and 1976 OSHA asbestos standards promulgation dates, the Navy in 1971 changed MIL-STD-769 from high content (85-95 percent) asbestos, to low content (5-15 percent) asbestos for pipe and block insulation and totally eliminated asbestos felt. In July 1974, MIL-STD-769K, "Thermal Insulation Requirements for Machining and Piping" was changed to specify the use of the new asbestos-free materials for thermal insulation applications. After initiating action necessary to purchase, stock, and specify the use of asbestos-free materials for thermal insulation throughout the Navy, the policy document, Naval Sea Systems Command Instruction NAVSEAINST 5100.2 dated 24 October 1975 was issued. This policy document prohibits the use of asbestos materials for thermal insulation when suitable alternatives are available and prohibits asbestos removal unless performed in conjunction with equipment or other repairs. In new construction ships, this policy results in propulsion plants virtually free of asbestos thermal insulation materials except for applications where suitable asbestos-free materials have not yet been developed (e.g., certain gaskets that must withstand high temperature, high pressure and abrasion). The Navy has identified over 300 asbestos-containing items for which suitable asbestos free substitutes are now being used.

The above illustrates that the substitution of asbestos-free materials for thermal insulation has evolved over a period of several years and is not as yet complete. Ship construction periods can be as long as 6 years. All Navy ships delivered in the past few years and those now under construction will contain some quantity of asbestos insulation where substitutes were not available during ship construction. The Navy has to negotiate contract modifications with each shipbuilder to eliminate the installation of asbestos. Decisions have to be made on an individual ship basis, considering the state of ship construction completion and the cost and schedule delay associated with asbestos removal.

The following is a tabulation of new construction ships which have been affected to some degree by this Navy policy:

LHA Class

Hulls 1 and 2 (delivered).—In compliance except for removable pads and boiler casing insulation. Removable pads will be clearly identified as containing asbestos to ensure safe and proper handling until pads are replaced.

Hulls 3 and 4.—In compliance except for boiler casing insulation. Ships will be delivered with asbestos free removable pads.

Hull 5.—Ship will be delivered asbestos free.

DD-963 Class

Full compliance on hulls 974-992. When the Navy shifted to asbestos free materials, all DD-963 Class ships through DD-973 were already equipped with asbestos thermal insulation. Insulation preservation and maintenance procedures will prevent asbestos exposure. During repair work, asbestos controls are invoked and equipment is reinsulated with asbestos free materials.

CVN-68-70

In compliance except for some catapult trough lagging/insulation—insulation preservation and maintenance procedures will prevent asbestos exposure.

AC/AD/AS/Auxiliaries

In compliance.

FFG Class

In compliance.

CGN Class

In compliance.

PHM Class

Hull 1.—Contains non-structural bulkheads constructed on Marinite—a hard surfaced material containing asbestos.

Hulls 2-6.—In compliance.

SSN 688 Class

Hulls 688-699.—In compliance.

Hulls 700-710.—Contract change to require full compliance in process.

Hulls 711-720.—Contract requires full compliance.

Trident Class

In compliance.

The second part of the Navy's program to reduce the amount of asbestos in ships is the replacement of asbestos containing materials with suitable asbestos free substitutes. The major effort and the most hazardous is the replacement of thermal insulation. The following is the Navy's stated policy for the removal of asbestos from ships:

(a) Asbestos use Policy. Asbestos and materials containing asbestos shall not be used in the construction, overhaul, repair, and maintenance of naval vessels where a suitable alternative material has been designated. However, in locations where asbestos containing materials are presently installed, rip-out operations shall not be performed for the sole purpose of eliminating asbestos except for the selected area replacement of thermal insulation as prescribed below.

(b) Selected area asbestos replacement policy. To further reduce the potential health hazard exposure from installed shipboard asbestos thermal insulation material, a selected area asbestos replacement policy is established. The five-year goal of this program is to replace asbestos with asbestos-free materials in all shipboard thermal insulation applications except for that overall 30 to 50 percent of insulation which is normally untouched except for occasional painting or minor repairs. Specifically, existing asbestos-containing thermal insulation which can be expected to require replacement during the remaining life of each ship for normal maintenance and repairs including components removed for interference, shall be replaced with asbestos-free thermal insulation. However, in some situations where in the application of this policy there may be some instances which result in replacement of 90 percent or more of the asbestos containing insulation within a ship's space, the remaining 10 percent should also be considered for replacement to achieve a thermal insulation asbestos-free space.

NAVY ASBESTOS EXPOSURE CONTROL PROGRAM

Fundamental to the Navy's program for eliminating the risk of asbestos fiber exposure to its military personnel is to minimize the amount of rip-out work which must be conducted at sea. It is recognized, however, that repair work while underway is a fact of life and, therefore, certain actions have been instituted to protect our personnel from exposure. The following actions have been initiated the past two years toward that end.

(a) Approximately 9,000 military personnel in the Pacific and Atlantic Fleets have received "hands-on" training since November 1978.

(b) Some 200,000 military personnel have received asbestos related questionnaires which may result in follow on examinations or consultation.

(c) Five hundred sound/slide presentations, entitled "The Fleet Asbestos Control Program", which advise of the hazards of asbestos and smoking and show correct techniques for removal of asbestos at sea, have been produced and are in distribution to the fleet.

(d) Continuing internal information initiatives on asbestos are published in periodicals which receive wide distribution in the Navy.

(e) Internal information films and "spots" for Navy closed circuit television systems hve been in fleet distribution for about two years. These are being augmented with new audio-visual material being prepared by various Navy agencies.

Because most of the asbestos rip-out work is performed while ships are undergoing repair and overhaul, extremely elaborate controls and procedures have been implemented in all naval shipyards.

During all asbestos handling operations, the protection of the employee is paramount. Each procedure is reviewed by Safety and Industrial Hygiene personnel to ensure proper protective precautions are taken relative to the degree of exposure shown in the air samples recorded from previous work of this type. During rip-out operations, all personnel are excluded except those equipped with a type "C" air-fed respirator. This type of respirator is to be used in any asbestos removal situation. However, this requirement may impose implementation difficulties when fully suiting-up with a type "C" air-fed respirator for those situations where a NIOSH-approved disposable respirator would suffice. Technical work standards are continually being reviewed to minimize the generation of airborne fibers. This procedure is applied to all asbestos work practices. Each asbestos rip-out operation involves the following elements: job preplanning; work site preparation; personnel preparation; personnel work site entry/exit procedures; actual asbestos removal; and, work site clean-up and certification. Exhibit No. 1 contains the specifics for executing the above elements in major asbestos removal operations, in minor asbestos rip-outs, and in operations involving asbestos fixed (bonded or contained) within the material.

PERSONNEL MEDICAL SURVEILLANCE

In his testimony before the House Subcommittee on Compensation, Health and Safety, Captain J. C. McArthur, the Commander of the Pearl Harbor Naval Shipyard, aptly described the elements of the medical surveillance program at Pearl Harbor. I have enclosed that portion of his testimony as Exhibit No. 2 to this statement. Except for the part of the procedure involving sputum cytology, this program is in effect throughout the Navy.

As for out military personnel, we have identified those ratings which are most likely to have been exposed to asbestos fibers occupationally. Beginning with the questionnaires, all of these military personnel will also be screened.

It is emphasized that those personnel working in asbestos related occupations or who have shown any history of exposure to fibers, will be maintained in the medical surveillance program for periodic examinations depending on each case.

SUMMARY

We have appreciated appearing before your committee to explain the complex Navy-wide program to control the exposure of Navy personnel to airborne asbestos fibers. We believe our asbestos removal policy coupled with the education program, work practices and medical surveillance will preclude problems in the future.

EXHIBIT 1.—CONTROL PROCEDURES FOR ASBESTOS OPERATIONS AT PEARL HARBOR NAVAL SHIPYARD

The following are the current procedures used for:

(1) major asbestos removal operation; (2) minor asbestos ripout; and (3) fixed asbestos operations.

1. MAJOR ASBESTOS REMOVAL OPERATION

Preparation and preplanning

(a) A meeting is scheduled with the Ship's Commanding Officer and his staff, as far in advance as possible, to review requirements and procedures.

(b) On surface craft, when possible, an access hole is cut in the hull of the ship. A platform is set up outside of the access hole so that the asbestos filtering unit can be placed as close as possible to the compartment being ripped out. Suction ducts are run from the filter unit through the access hole to the rip-out area. If no access hole is cut, the suction ducts must run from the main deck through the levels to the work space.

(c) All compartment openings, including ventilation ducts are sealed to provide a slight negative pressure in the compartment and prevent contamination of other parts of the ship.

(d) A double containment change room made of heavy canvas is set up at the entrance to the compartment.

(e) The compartment adjacent to the change room (entrance to the rip-out area) is designated for staging all the clean personal protective material and equipment. It is also used for suiting up prior to going into the rip-out area.

(f) The worksite is draped with large drop cloths to prevent any loose asbestos from falling into the bilges.

(g) All the necessary equipment that will be needed during the rip-out, such as vacuum cleaners, water hoses, air line hose and filter pots, red poly bags and additional lengths of exhaust hose, is moved into the compartment. Air sampling pumps are set up in the double compartment in the change room to monitor for possible air contamination. This is done in all areas where dust leakage might occur. During the rip-out, air samples are taken within the isolated compartment to be documented and used as a baseline for this type of operation.

(h) The filter unit is tested for correct operation, the exhaust air is checked and the compartment negative pressure verified.

Personnel protective equipment.—Workers and inspection personnel entering the rip-out area are properly suited up before entering. Suiting up is accomplished in the following manner:

(a) First, a pair of disposable coveralls is put on.

(b) Surgical gloves are put on and the wrists of the coveralls are taped to gloves.

(c) A pair of rubber boots are put on and the coveralls tucked into them.

(d) A second pair of coveralls is put on up to and temporarily secured at the waist. The pantlegs of this pair are taped to the outside of the rubber boots.

(e) A head cover is pulled on and the individual finishes putting on the second pair of coveralls over the top of the apron on the head cover.

(f) A full face air line respirator (type C) is then put on.

(g) A pair of long-sleeve cotton gloves is the last item to be put on.

Note: Before a worker enters the rip-out area a guard assigned at the control point logs in the worker's name, badge number, position, title and reason for entering. He is additionally assigned the task of inspecting each person who enters the containment for proper suiting.

Rip-out operations.—During this operation, the workers function as a team. The team consists of a cutter and a spray man using the following procedures.

(a) Cut the lagging using a knife or rotary shears.

(b) During the cutting operation a fine water spray mist is directed to the cutting area to minimize asbestos dust.

(c) A vacuum suction is placed in the cutting area to suck up asbestos fibers to minimize potential airborne exposure.

(d) As the lagging is cut and removed, it is placed in red bags for disposal as asbestos waste.

(e) The debris in the bags is watered down and the bags are closed off to be placed in the asbestos waste dumpster dockside.

Cleanup operation.—After all rip-out has been completed, the compartment is policed and all pieces of insulation that has fallen to the deck/drop cloths is picked up and placed in the red poly bags. Vacuum cleaners are used to clean up all dust particles. The drop cloths are carefully folded/rolled up and put in red poly bags, and placed in the asbestos dumpster as asbestos waste. The compartment is then washed down from top to bottom to make sure that all the asbestos fibers have been removed. When the wash down is completed, the bilges are "wheelerized" (pumped out) and all debris picked up.

Certification.—After clean-up operation has been completed, air sampling pumps are set up in the compartment by the Industrial Hygienist. These pumps are run for eight hours with the ship's air supply ventilation on. When the samples show "0" to ".4" fibers per cubic centimeter, a detailed inspection of the compartment by a member of the Safety Office and a senior-line manager from the Quality Assurance Office is conducted to ensure that the compartment is clean before it is turned over to the Production Department for regular overhaul work.

Exiting.—An asbestos worker exiting the rip-out area will enter the first containment where he removes his first pair of coveralls and cotton gloves. He then enters the second containment where he vacuum cleans his entire body, concentrating on the air fed respirator and head cover. He then vacuum cleans his rubber boots. After vacuuming his entire body, he removes his air fed respirator, head cover and coveralls which he uses to wipe clean his rubber boots before removing them. He then removes his surgical gloves and exits the containment and logs out. He takes his air fed respirator to the change room where he cleans it with alcohol and a clean rag before storing until he's ready to enter the compartment again. After his work shift, he places his type "C" respirator in a red poly bag and seals it before turning it in to the tool room for sterilization. The rubber boots are also turned in for sterilization/washing.

2. MINOR ASBESTOS RIP-OUT

For minor asbestos rip-outs, i.e., removal of asbestos insulation on a pipe for valve or flange repair, the following procedures apply:

Site preparation

(a) Set up drop cloth or containment to prevent dust from spreading to adjacent areas.

(b) Set up barrier ropes around the rip-out site—at least 15 feet from the rip-out point.

(c) The following are placed in the containments: industrial portable vacuum cleaner approved for asbestos use, water spray can/bottle, and red poly bag.

(d) Post asbestos warning signs around the perimeter at the entrances to the rip-out area.

(e) Secure ship's ventilation or other air generating equipment in the vicinity.

Personnel protective equipment.—The following personnel protective equipment is to be properly worn by the asbestos worker: disposable coveralls, head cover, foot covers, approved respiratory equipment and surgical and cotton gloves.

Removal operations.—Before starting a rip-out, the supervisor must certify the rip-out area ready for work and authorizes removal by completing the Check-off List for Asbestos Removal (Rip-out) form. The supervisor will inform the ship and the Safety Office that rip-out is in progress. A Safety Specialist will spot check the rip-out operation for compliance. After the insulation is removed, the cut ends on the pipe are sealed. All asbestos debris is removed and the area vacuumed. Personal protective equipment will be disposed of as asbestos waste. The supervisor will then check the area for cleanliness and if clean, the barrier ropes and signs will be removed.

3. FIXED ASBESTOS OPERATIONS

Pearl Harbor Naval Shipyard has also implemented control procedures for fixed asbestos operations, such as gasket cutting, packing, etc.

Personnel Protective Equipment.—Personnel protective equipment includes: NIOSH-approved single-use disposable respirator (3M8710); disposable coveralls taped at the wrists; disposable head cover; surgical and cotton gloves; asbestos vacuum cleaner; non-pneumatic tools; and water spray bottle.

Work methods (within an asbestos controlled room)

(a) Worker suits up outside of the containment and signs the asbestos log sheet prior to entry.

(b) The local exhaust is placed as close as possible to the cutting operation.

(c) Asbestos material is wet-down before cutting.

(d) The area is thoroughly vacuumed after each operation.

(e) The worker exits to the change room, vacuums his protective clothing and then removes it while still wearing the dust respirator. The respirator is removed just before exiting. Worker signs the asbestos log sheet upon exiting the worksite.

(f) All waste asbestos materials and contaminated personnel protective clothing is packaged in red asbestos poly bags which are secured with tape and placed in dumpster reserved for asbestos waste.

(g) All asbestos material and finished products are contained in plastic bags which are labeled with asbestos caution tags.

Work methods (outside of an asbestos controlled room).—Procedures for working (installation or removal) with fixed asbestos materials outside of an asbestos controlled room are as follows:

(a) Installation of fixed asbestos.—The worker must wear cotton gloves over surgical gloves and a disposable dust respirator (3M-8710). The worksite must be thoroughly vacuumed after completion of the operation. All contaminated personnel protective equipment and debris must be placed in red poly bags which are then sealed and placed in asbestos dumpsters.

(b) Removal of fixed asbestos.—The worker must wear disposable coveralls, head covering, cotton gloves over surgical gloves, and a disposable respirator (3M-8710). The coveralls must be secured at the wrists and ankles with tape. Upon completion of the operation, the immediate and adjacent areas must be vacuumed. All contaminated personnel protective equipment and debris must be placed in red poly bags which are then sealed and placed in asbestos dumpsters.

EXHIBIT 2.—ELEMENTS OF MEDICAL SURVEILLANCE PROGRAM [1]

EMPLOYEE MEDICAL MONITORING; PRESENT PEARL HARBOR PROGRAM

In early 1978, a group of shipyard management and technical experts conducted an in-depth study of the existing employee medical monitoring program at Pearl Harbor Naval Shipyard. The study recommended substantial modifications to the Pearl Harbor program. Those modifications were subsequently approved by higher authority.

On 24 April 1978, the Shipyard command ordered implementation of an upgraded medical monitoring program incorporating the recommendations of the shipyard's study. The new program increased the population of workers who would routinely be monitored and meant that virtually all employees needed an initial screening examination to determine, by questionnaire, whether they had ever knowingly been exposed to concentrations of asbestos fibers as a result of life's activities on and off the job, and to determine by physical examination and testing whether they evidence any abnormalities which might be asbestos-related disease. In quantitative terms, the program which in early 1978 consisted only of active asbestos workers (237 employees) was then expanded to nearly 6,000 workers for initial screening.

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[1] Excerpted from: Statement of Capt. J. C. McArthur, U.S. Navy, Commander, Pearl Harbor Naval Shipyard in testimony before Subcommittee on Compensation, Health and Safety House Committee on Education and Labor, Nov. 13, 1978.

Many exposed workers no longer hold production department jobs, but have gravitated over time into technical and managerial positions. Regardless of their present positions, all workers who evidence an asbestos-related abnormality or who meet other special exposure criteria will be monitored throughout the remainder of their employment.

The study had estimated that 120 days would be required to place the revised program in full scale operation after the implementation order was given. A competitive contract was let to HEAREX Corporation of Tampa, Florida, who brought mobile examination facilities into the Shipyard, moving from shop to shop to complete the examinations. The first examinations were given on 20 July 1978. All examinations were completed in November 1978 except for some personnel on extended travel and leave. A few employees have elected not to participate in the examination program even after counseling. Each examination consists of the following:

A comprehensive work/smoking/medical history questionnaire was administered by a technician to ensure accurate, complete and consistent results. Since smoking and asbestos are both significant risk factors in the development of disease and are seemingly synergistic, the smoking history is extremely detailed. Also the work history is the only real tool available to determine if a person has been exposed to asbestos dust; and therefore, it too, is very comprehensive.

A physical examination is performed concentrating on the exposed skin and the lungs.

A screening pulmonary function test is performed with a spirometer. The parameters measured are Forced Vital Capacity, Forced Expiratory Volume in one second and the midexpiratory flow rate. The results are compared with results expected for the normal population and can be a valuable tool for the early diagnosis of pneumoconioses.

A chest x-ray is interpreted in accordance with the International Labor Organization (ILO-U/C) 1971 International Classification of Radiographs of Pneumoconioses. A "B-Reading" is an interpretation of the chest film by personnel certified by the National Institute of Occupational Safety and Health as qualified in this system of classification. There are approximately 100 certified "B-readers" in the United States.

Sputum cytology tests have been included in the Pearl Harbor medical monitoring program as an additional screening test. The result of this test may assist in making an early diagnosis of malignant disease, even before a tumor is apparent on an x-ray.

All test results were forwarded to Tampa, Florida, where they were evaluated by both "B-readers" and chest physicians highly experienced in evaluating results in pneumoconioses screening programs. The evaluated results are computerized and returned to the Medical Officer at Pearl Harbor. They are then re-evaluated in the local clinic. At this date, 1306 reports have been returned and processed. It is important to note that the results are preliminary and should not be projected as being representative of the complete survey.

At this time, 176 of the 1306 workers have either x-ray or pulmonary function changes which may be related to asbestos exposure. It should be clearly understood that this monitoring program is a screening program with a range of limits set so that there will a significant number of false positive results. Several of those examined who appear to be affected now will fall back into the nonaffected population after further medical evaluation.

The continued evaluation of the 176 people who may have occupational disease will include a consultation with the occupational health physician and a decision will be made to retest and/or re-evaluate. Those people with definite changes will be referred to a pulmonary specialist for an opinion on the extent of the disease and whether or not there is any degree of disability. The Shipyard has made arrangements with the local Office of Workers' Compensation Programs for these referrals.

In addition to the 176 people mentioned above, the screening program has identified a significant group of people with non-asbestos related medical problems, e.g., blood pressure abnormalities, heart murmurs, emphysema, and obstructive pulmonary function defects. Each individual concerned will be informed of such a condition so that they may be further evaluated by his/her private physician.

Captain **Montoya**. Our efforts to protect our military personnel from exposure to asbestos dust is reflected in Navy policy, training, workplace controls, and in our medical surveillance program. It is the Navy's policy to perform the major part of asbestos ripout from ships in our shore industrial activities. In our instructions we limit the amount and type of ripout which may be conducted at sea and then only with the express approval of the ship's commanding officer and under strict work practice procedures. These procedures are designed to meet the current standards promulgated by the Occupational Safety and Health Administration and are documented in a Chief of Naval Operations instruction and a Naval Sea Systems Command Technical Manual, copies of which have been provided this subcommittee by prior witnesses.

Furthermore, we have taken steps to eliminate, where feasible, asbestos-containing materials which pose a threat to personnel conducting maintenance operations at sea. New construction specifications, in effect since 1974, preclude the use of asbestos thermal insulation, and other specification changes have eliminated over 300 other asbestos containing items. Additionally, through a selective asbestos thermal insulation removal program, we are accelerating the rate at which these materials are being replaced in high maintenance areas such as in ships' engineering spaces.

However, because we do have military personnel conducting asbestos ripout while a ship is at sea, we have taken additional steps to protect them. These include training, the provision of protective clothing and equipment, and follow-on medical surveillance of those personnel deemed occupationally exposed.

We have established training programs in our major naval complexes with the objective of having personnel trained in asbestos ripout on each naval ship. To augment this training, the fleet has been provided videotape cassettes which are instructive on the health hazards of asbestos and show correct techniques for asbestos removal at sea. In addition, the Bureau of Medicine and Surgery is nearing completion of two films which will be incorporated into the Navy's training program. Approximately 9,000 military personnel in the Pacific and Atlantic fleets have received training since November 1979.

Over the past year, in addition to the rigid engineering control measures required for safe asbestos ripout, we have been outfitting Navy ships with protective clothing and equipment, such as respirators, as added protection during ripout operations.

Last, we have instituted a medical surveillance program of fleet personnel which is still in the early stages. Dr. Bellanca is prepared to answer questions regarding the results of previous medical studies or surveys the Navy has undertaken.

That concludes my oral statement, Mr. Chairman.

Mr. BIAGGI. Thank you very much, captain.

Mr. Nachtsheim?

Mr. NACHTSHEIM. Thank you, Mr. Chairman.

My name is John J. Nachtsheim. I am the Assistant Administrator for Shipbuilding and Ship Operations in the Maritime Administration. Your invitation was addressed to Mr. Nemirow, and he regrets that he was not able to be with you today.

As the agency's coordinator for environmental activities, he has asked me to pinch hit.

The invitation noted concern regarding the potential threat to health posed by shipboard exposure to asbestos fibers and particularly as to underway repair work in propulsion spaces.

It also referred to the Maritime Administration's ongoing study of vessel construction standards for U.S.-flag vessels and the applicability of relevant exposure standards as topics of inquiry.

It goes without saying that the Maritime Administration shares your concern for the health and safety of our seafarers aboard ship. Agency personnel are physically closely involved with the merchant marine and shipbuilding, and members of our staff regularly visit and work alongside shipyard workers and merchant fleet crews.

In performing these jobs, construction representatives in shipyards, National Defense Reserve Fleet personnel, Merchant Marine Academy cadets, as well as all other personnel who visit ships and shipyards, are also exposed to asbestos. Once the asbestos hazard was fully appreciated, the Maritime Administration responded in several ways. We have proceeded with the enthusiastic cooperation and assistance of unions, shipowners, shipyards, other Federal agencies and recognized authorities in the medical profession. I would like to now briefly outline our activities with respect to controlling the hazards of asbestos:

One, MarAd asbestos sampling R. & D. program aboard ships: A necessary priority step, we felt, was to quantify the extent of exposure encountered by our seafarers in the U.S.-flag merchant fleet, both under ambient conditions and during maintenance and repair activities. To our knowledge, this had never been done. Thus, in July 1978 we entered into a contract with the Illinois Institute of Technology Research Institute, IITRI, for the purpose of establishing the broad scope of and the equipment requirements for a full-scale, comprehensive research effort to make such an assessment.

During the first phase of our research program, three ships of the U.S. merchant fleet were tested, and samples of airborne particulate matter were taken at four fixed locations in the engine room of each ship. A report on phase I has been completed and distributed, and you, sir, introduced it into the record at the beginning of this meeting.

On the basis of comments received on the phase I report from Dr. Jones of Tulane University, Mr. Calhoon of MEBA, and others, our plans for subsequent research were modified. Consequently, a new phase II of the research program was initiated and it consists of two parts.

First, the compilation of health and occupational histories of merchant seafarers is being undertaken by Dr. Irving Selikoff, director of the Mount Sinai School of Medicine, with funding from NIH;

Second, short-term sampling of specific shipboard maintenance actions suspected of being hazardous in terms of release of airborne asbestos fibers will be performed. This latter aspect of the program should be completed by October 1980, and will help MarAd to confirm or modify current practices to be used when repairing boilers, steampiping, and other equipment insulated with asbestos, while the ship is underway or in the reserve fleet.

We believe that a long-term, statistical survey and analysis of ambient airborne asbestos fiber concentrations in ship engine rooms should be undertaken, preferably under the direction of one of the health or environmental agencies such as NIH or EPA. We would be pleased to join in such a program on a cooperative basis.

Two, Maritime Administration vessel construction standards: The Maritime Administration reviews plans and specifications under its several assistance programs involving ship construction authorized by the Merchant Marine Act. These programs are construction-differential subsidy, CDS, under title V of the act, and ship financing guarantees, under title XI of the act.

Our standard specifications for merchant ship construction prohibits the use of insulating and lagging materials containing asbestos. The text clearly states that insulating or lagging materials which contain asbestos shall not be used.

Over the last 2 years, this provision has been enforced, without exception, under all new CDS contracts. Further, asbestos joiner bulkhead panel material is no longer specified.

The many ships built privately and without such assistance, of course, are not subject to our design review. However, our standard specifications are a recognized authority and do influence naval architects and other professionals designing commercial ships. In a recent telephone survey to yards building private vessels we were happy to learn of the apparent universal policy to avoid the use of asbestos in new construction and repairs on a voluntary basis.

Three, National Defense Reserve Fleet: The several National Defense Reserve Fleet sites hold numerous vessels in varying states of readiness for use in time of national defense and other emergencies. All of these ships were built years ago and contain asbestos. The Maritime Administration has a highly professional group of employees representing all the crafts necessary to maintain the readiness state assigned these vessels. This work is performed on and around asbestos.

To improve the well-being of these employees, in June 1979 we issued a manual entitled "Guidelines for the Control of Asbestos Fiber Hazards in the National Defense Reserve Fleet." These guidelines prescribe the proper procedures to be followed in the handling and disposal of scrap asbestos. The manual was introduced into the record by you, Mr. Chairman, at the outset of the session.

Four, Ship Disposal Program: Vessels in the custody of the Maritime Administration periodically become surplus to Government needs. The Maritime Administration is the sole disposal agency for all vessels of merchant configuration over 1,500 gross tons. While a few such vessels can be retained intact for nontransportation use by the purchaser, many ships are purchased for scrapping.

During 1978, the Maritime Administration voluntarily suspended sales of surplus vessels pending analysis of the asbestos problem. Our studies are substantially complete. We anticipate a decision on reactivating the surplus vessel sales program during the next few months. Any future sales will be contingent upon the implementation of stringent protective and control measures for asbestos exposure.

Five, Asbestos Medical Surveillance Program: A significant undertaking to protect our reserve fleet workers and other MarAd personnel is the design and implementation of a voluntary medical surveillance program. This program is reaching an advanced stage of development and will be in place later this year.

It is being coordinated with the U.S. Public Health Service and within the Department of Commerce, that is, NOAA, and is modeled after the U.S. naval medical surveillance program. It will include all MarAd employees who are even suspected of having been exposed to potentially hazardous quantities of airborne asbestos fibers while on the job.

Six, Maritime Administration study of the control of asbestos hazards in MarAd programs: In view of all these asbestos-related activities and others which I have not mentioned, MarAd has currently underway a comprehensive study of all aspects of its asbestos-related activities. In this regard, we have formed a task force of senior agency and departmental personnel for the purpose of developing the needed environmental assessment. Following this assessment, it is anticipated that controls will be developed to affirm or modify procedures for all aspects of our activities related to asbestos. The aim is to completely prevent or minimize the exposure of both agency and nonagency personnel to airborne asbestos fibers while involved in any of MarAd's program functions.

Now I would like to touch upon the applicability of relevant health standards for asbestos exposure which you mentioned in your letter as being an additional subject to be looked into at this hearing.

The Environmental Protection Agency, EPA, has issued a national emission standard for asbestos which is contained in 40 CFR, Part 61B.

The Occupational Safety and Health Administration, OSHA, has set the present safety and health regulations for handling asbestos fibers or material containing asbestos fibers.

The OSHA regulations, as codified in 29 CFR, Part 1910.1001, define permissible asbestos exposure limits, methods of compliance, personnel protective equipment, methods of measurement of airborne asbestos fibers, signs and labels warning of asbestos hazard, housekeeping methods for fiber control, and waste disposal, recordkeeping for monitoring and exposures, and medical examinations. The OSHA standards are applicable to shipyard and other shoreside personnel who work on ships under construction or repair in a shipyard.

We also recognize the unique responsibilities of the U.S. Coast Guard regarding all aspects of health and safety aboard ship.

The Coast Guard is currently developing regulations for protecting the safety and health of merchant ship crews from asbestos fiber exposure. The Coast Guard witness appearing before you today will, I presume, address the Coast Guard's activities and plans in this area. The Maritime Administration has supported and will continue to support the Coast Guard in all its efforts to assure the safety of ships and health and safety of their crews.

Mr. Chairman, that concludes my prepared statement. I would be pleased to answer any questions that you or other members of this subcommittee may have.

Mr. **Biaggi**. Thank you very much.

One thing that comes through here very clearly is that the Navy is way out in front.

In the light of the Navy's policy and its implementation of education and surveillance and protective outer garments and respiratory devices, what would you expect, Mr. Nachtsheim, to accomplish in your study?

Mr. NACHTSHEIM. We are looking at Navy procedures and practices. We have seen their slide presentation on the methods that they use. We have also looked at everything the Coast Guard has done and the things that OSHA has done. Really, it is a sweeping together and awareness of all the activities that are going on. We do not intend to create new requirements. In a sense we are not going to plagiarize; we are going to steal.

Mr. BIAGGI. That is the highest form of compliment, is it not? I am impressed with the educational system. You have slides, and you have two major films under way. I know you were present when I made my initial observations as far as film treatment of venereal diseases many years ago.

Captain MONTOYA. Yes, I was.

Mr. BIAGGI. Do you intend to have the same shock element in these films?

Captain MONTOYA. Not to that extent, as even I remember some of those films that you talked about.

Mr. BIAGGI. Sort of interfered with our social life for a while.

Captain MONTOYA. These films are more instructive; but they do go to the heart of the matter; that a sailor takes his life in his hands essentially when he puffs cigarettes and does not use his equipment. The fact that it is a life-and-death matter is brought out very clearly.

Mr. BIAGGI. Has the Coast Guard asked you to supply any of your video cassettes on any of the Navy educational material?

Captain MONTOYA. The Coast Guard is aware of all the things we have been doing, particularly lately, and they have been in touch with Captain Gibson, looking at our instructions and getting copies of our materials. They have also been in touch with our Office of Information, who is helping produce these instructional cassettes, and so forth.

Mr. BIAGGI. Have you provivided them or are you providing them?

Captain MONTOYA. Not at the present time. We are not routinely providing them.

Mr Biaggi. Has request in fact been made?

Captain MONTOYA. Not that I know of.

Mr. BIAGGI. If request was made, would you provide it?

Captain MONTOYA. We would be glad to, Mr. Chairman.

Mr. BIAGGI. I would like to get the obvious on record.

How about medical screening? There has been some testimony in relation to that. How do you do it?

Captain MONTOYA. I would like to refer that question to Dr. Bellanca.

Dr. BELLANCA. To start off with, we give each employee and each sailor a questionnaire asking to the best of your knowlege, have you been exposed to asbestos? They can answer yes, no, or uncertain. If they answer yes, they are brought in for further interview, and if they have had significant exposure, then they are put into a medical screening program. If they answer no, obviously they are not put into the program unless perhaps they were in a job where it was likely they had exposure and they just did not understand the situation. The persons who are uncertain are also given further questioning; and if it seems likely that they had significant exposure, they are put into the medical examination program.

The medical examination program starts off with a medical history, an occupational history, a chest X-ray, done by special techniques to detect early changes of asbestos-related disease, pulmonary function testing and physical examination of the chest. There are further criteria.

Some people will not be continued in the program if they have no evidence of disease and if it is unlikely they had significant exposure. There are other criteria, there are special criteria, that if certain types of things are found, for instance, chest X-ray changes consistent with asbestos exposure, those people would be put under continual surveillance.

Mr. **Biaggi**. Describe "continuing surveillance." The thought I had in mind was one raised by Mr. Hughes.

What is the degree of followup?

Dr. **Bellanca**. There are various categories, dependent upon the likelihood of an individual developing serious disease. They will be followed every year or, some people with much lesser risk will only be followed maybe every 3 or 5 years. They get the same examination they got originally, the chest X-ray, pulmonary function testing, further medical history, et cetera.

Mr. **Biaggi**. Captain, it has been reported that, despite Navy policy, some new classes of construction still utilize asbestos-lined pipes, although they are plastic covered.

Captain **Montoya**. Mr. Chairman, that's true in this sense. In 1974, we changed our specification precluding the use of thermal insulation on our ships. However, we had a number of contracts already awarded prior to 1974, and of those contracts, we did effect change orders to those ships that had not been started yet or were not very far down the construction path, to eliminate the asbestos from the ships.

However, there are some being delivered now and some have been delivered that were too far along in the pre-1974 construction period that do have asbestos. Ship contracts awarded after 1974 are asbestos free in the thermal insulation area.

Mr. **Biaggi**. The Navy is maintaining OSHA standards, I understand.

Captain **Montoya**. That is correct, Mr. Chairman.

Mr. **Biaggi**. Are you contemplating making them more strict or adopting NIOSH standards?

Captain **Montoya**. We looked at that and opted for the OSHA standard per our general policy of adopting the OSHA standard as being applicable. We have some concerns, Mr. Chairman, with the NIOSH proposals.

Mr. **Biaggi**. Well, you heard OSHA testify this morning that they would recommend NIOSH proposals, and they are contemplating some agreement in their discussions. I think it was Balis Walker that stated that some feasible standard could be adopted.

I think Mr. MacKenzie made a very important point, especially on shipboard. The personnel not only works there but lives there, and hence the standards that might be applied on shore facilities would even have to be more strict, I would extrapolate from what he said than currently.

What objection would you have to making your standards more severe?

Captain **Montoya**. Let me answer the question in the following fashion. We subscribe to the recommendation that we ought to get rid of asbestos that releases fibers in the air throughout the ship or whatever other products we use.

Second, we also subscribe to the proposition that we ought to get as close to zero as possible, and third, the discussion has great merit that our sailors do stay on that ship 24 hours a day, but that is not only true with asbestos, it is true with noise. It is true with other substances in the air.

So we are very concerned with those 24 hour living conditions aboard cur ships. What does concern us is the practicality, even though we are trying to get to zero exposure in whatever substance, is involved, of suiting up 400 sailors with masks and protective clothing because we may approach a 0.1 fiber per cubic centimeter in parts of the ship.

It is very difficult to measure levels of asbestos while underway. But, let us say you set the standard at 0.1 fiber, and you measured the ship in port and you went through it with your industrial hygienist and the levels measured zero or well within those tolerances. That is no guarantee that you may not come close to 0.1 fiber per cubic centimeter when you go to sea and you have a ripout underway. Even under the best conditions, there may be an inadvertent release, and you may get temporary levels of 0.1; but measuring that 0.1 at sea is a very difficult proposition.

And if you could measure it, do you suit everybody up for the next 3 days? There is another question that I would have of the previous testifiers. I have read correspondence that speaks to 0.1 fibers in the air in many of our large cities around some of our industrial complexes. Do we suit up our private citizens because we are approaching 0.1 in asbestos in our ambient environment?

That is another general question that I would have. Dr. Bellanca may have more comments on that issue.

Dr. **Bellanca**. I think when the Navy policy was formulated, there were two main considerations. First, we have to meet the law, and second, and even more importantly, we want to prevent asbestos disease based on what we actually know about it, not what we speculate.

Mr. **Biaggi**. What do you think we know about it, Doctor?

Dr. **Bellanca**. I think we know that people who conduct ripouts get diseases that kill them and become disabled. I think we know that people who work in other types of occupations where they are exposed to large amounts of asbestos over a long period of time get diseases and disability.

When you start saying we are going to prevent cancer, that is another matter altogether, because we really do not know anything. That is strictly speculation, and there is no scientific evidence to support such a statement.

Mr. **Biaggi.** Let me pursue that. It may be going a little afield. But accepting that as a given, then why are we talking about asbestos today?

Dr. **Bellanca.** Because there are places where ripouts are being conducted that workers do not know safe practices, and they do not have the equipment to protect themselves.

Mr. **Biaggi.** Yes. But why is it dangerous?

Dr. **Bellanca.** Because asbestos is inhaled in excessive quantities. We know at certain levels, very high levels over a period of time, if a worker inhales that, he gets disease. We do not know the exact danger at very low levels because in fact you and I are exposed to asbestos every day.

Mr. **Biaggi.** Well, besides cancer which seems to preoccupy most people, hoping one day we can find some remedy, it causes asbestosis as well as a number of other diseases, does it not? So would it not then follow that we should reduce the exposure as much as possible?

Dr. **Bellanca.** I think when you have a situation where you know asbestosis is occurring because you have a certain level of exposure, then you have to lower the level below that plus put a safety margin on it to make it even a little bit lower.

But when we get down talking to the levels that people are beginning to discuss nowadays, we are below levels where we are concerned about asbestosis. We are talking about cancer.

They are considering cancer, that is why the standards have been lowered much lower than they were for asbestosis.

Mr. **Biaggi.** Do you feel there is a relationship between asbestos and exposure and cancer?

Dr. **Bellanca.** That is a difficult question to answer.

Mr. **Biaggi.** Is there any evidence of that relationship?

Dr. **Bellanca.** Yes, there definitely is. For instance, the insulation workers' union that Dr. Sellicoff studied, 5 percent of those people in that union died of mesothelioma.

Now, that was probably a worst case situation. Those people were exposed back, say, from 1940 to 1950 or 1955 when control measures were the least. Normally, in the general population, you do not expect to see anybody die of mesothelioma.

When you get into the area of lung cancer, you have another problem altogether. What is called bronchogenic carcinoma, a different form of lung cancer. This is the type of lung cancer that occurs with cigarette smokers.

Mr. **Biaggi.** All right. I think we have developed some logic for imposing standards. Now, given the testimony of other witnesses, what objection would you have reducing from 500,000 to 100,000 as NIOSH has in establishing that as a standard. What would be the hardship?

Dr. **Bellanca.** From what my industrial hygienist friends tell me there are many areas where the background level can be that high. A second objection might be that the technology for measuring at that level is not very precise.

A third objection is that we do not really know that we are preventing anything when we are talking about a half a fiber per cc or a tenth of a fiber per cc. We are strictly speculating. We are saying that if a low level is good, a lower level is even better. We do not really know that.

Mr. Biaggi. It reminds me of the commercial "I would be afraid to be half safe." But the effectiveness of your equipment, Captain, the outer garment protective coverings you have, have they been assessed for effectiveness?

Captain Montoya. Yes, Mr. Chairman, all the respitatory related equipment that we use is approved by NIOSH/OSHA. We do not use nonstandard, nonapproved equipment.

Mr. Biaggi. Admiral Ratti?

Mr. Ratti. May I ask what is the effect of the ship's ventilation system during, ripouts. Say, you have a ripout in the engine room and you have a lot of asbestos fibers in the air. Does the ship's ventilation, will that result in distributing those fibers throughout the whole ship or will it, in general, result in removing the fibers from the ship's environment?

Captain Montoya. Let me defer to Captain Gibson, an old engineering officer.

Captain Gibson. Good morning, Mr. Chairman. Specifically we do two types of ripouts that, by our definition in the Navy, a major asbestos ripout and a minor asbestos ripout. First of all, forces afloat, the people that run and operate our ships are prohibited and not allowed to do a major asbestos ripout. That is reserved only to the shore establishment, and at those times when we conduct major asbestos ripout, the ventilation of a system of a given engineering space or any space where it is being conducted is completely, shut off and physically isolated with bags and taped off so that there can be no asbestos fiber that gets into it.

Second, with respect to the minor asbestos ripout which ships force can accomplish, all ventilation in the space is not necessarily secured. However, the requirement incident to that asbestos ripout is very explicit with respect to the ventilation in the area of the ripout.

It gets so specific it gets down to the point that within 3 feet of the ripout a match must remain lighted. So area ventilation of the ripout is secured but the entire space is not.

Additionally, incident to that minor asbestos ripout, we have containments that are required to go completely around the area where the ripout is being conducted to further reduce any airborne asbestos fiber.

So with respect to the general question you asked, asbestos fibers in the ventilation system, the answer is practically nil with respect to any type of asbestos ripout in our ships, major or minor, sir.

Mr. Ratti. So the asbestos ripout that took place would only be a threat to the people that are in that immediate area doing that job. It would not be transferred throughout the ship and threaten other people.

Captain Gibson. Yes, sir. Our requirements are such that I do not believe that it poses a threat to the people that conduct the ripout. If they are there conducting the ripout without protective equipment, without respirators, obviously, they are affected.

However, we have such engineering work practices not only for our shore establishment activities but for the forces afloat sailors by requirements to wear/use identified NIOSH-approved respirators and equipment that even though they are conducting the ripout, and have received the training, have the protective equipment, and know the step-by-step procedure to carry out that asbestos ripout so as not to cause a harmful effect upon themselves.

Mr. **Ratti.** Do you think there would be any problem in applying similar standards to merchant vessels?

Captain **Gibson.** Absolutely none, sir. Our NSTM chapter 635, searching for an appropriate word, may be looked at as a cookbook approach that can be read by the sailors on the deckplate and understood. It tells him from the beginning what has to be done in the preplanning stages, going through the step-by-step ripout all the way through and including the disposal, the proper disposal of the asbestos waste material.

I think these procedures that we have outlined in our technical information book to the fleet can be well-adapted by the merchant marine very easily.

Mr. **Ratti.** Thank you, Captain.

Mr. **Biaggi.** Mr. Nachtsheim, what are the preliminary findings of the phase II Maritime Administration-sponsored studies of asbestos hazards?

Mr. **Nachtsheim.** Phase II has not commenced other than the work by Dr. Selikoff. The measurement during ripout will be done by October of 1980. Phase I was the measurement in the engine room as it stood without any work going on. Is that the portion you are asking about, sir?

Mr. **Biaggi.** I was asking about phase II. It has not commenced.

Mr. **Nachtsheim.** Phase II is basically, as I mentioned, two parts. One, the work by Dr. Selikoff, and two, the measurements in a space while work is being done, while ripout work is being done to see how high the level goes, and then how low it will go and in what period of time following the work of high intensity.

Mr. **Biaggi.** When will you have those?

Mr. **Nachtsheim.** Well, the latter, the work that I described with respect to the measurements during ripout will be completed by October of 1980. The work by Dr. Selikoff was supposed to be done sooner, but Dr. Selikoff is a very busy man, and he is not proceeding on the same schedule that we had initially thought he would.

Mr. **Biaggi.** You mentioned asbestos background levels. The subcommittee has been informed that the highest asbestos background level in the country is in Rockville, Md.

Captain **Gibson.** We mentioned it. It was in Philadelphia, 100,000 fibers per cubic meter. The NIOSH report on that, Mr. Chairman, identified in the Philadelphia testing 100,000 fibers per cubic meter.

And I believed that the information that I was aware of, that I have seen that that is the highest one. They tested four major cities, Philadelphia being the highest. That is equivalent to what we have been talking about here, 0.1 fiber per cubic centimeter of air.

Mr. **Biaggi.** What was that in Philadelphia?

Captain **Gibson.** The statistics that they used was 100,000 fibers per cubic meter, and that comes out related to the discussion here today 0.1 fibers per cubic centimeter of air.

Mr. **Biaggi.** Mr. Bruce?

Mr. **Bruce.** I would take advantage of Mr. Nachtsheim's presence to ask a few questions of concern to some of the members. You referred to your standard construction specifications. With respect to construction standards independent of asbestos, do your standard specifications duplicate the American Bureau of Shipping or Coast Guard standards or exceed those standards?

Mr. **Nachtsheim.** The standard specification is an advisory document. We do not make them mandatory except in several areas. The way we make them mandatory with respect to asbestos is by stating the prohibition as I mentioned but then controlling it when the plans and specifications for the specific ship come in. We, at that point, would enforce that requirement.

Only in the case of the pollution requirements that came about as a result of the activities that we were involved with in 1973 did we change our specifications to make them mandatory. That included the pollution section and the collision avoidance radar requirement. At that time, they did exceed the Coast Guard requirements, but at the present time changes in Coast Guard regulations as a result of the IMCO Tanker Safety and Pollution Prevention Conference, TSPP and the Ports and Waterways Safety Act of 1978 make our specifications no higher in any respect.

There was one other question you asked.

Mr. **Bruce.** Well, I was going to move on. You refer at some point in your testimony to construction engineers. I assume they are field inspectors. How many field inspectors does MarAd maintain at the various shipyards throughout the country?

Mr. **Nachtsheim.** Eleven personnel are located in shipyards, two of whom are clerical. You did ask about ABS before. Excuse me. We require ABS approval so our specs do not exceed those. They are complementary. But we do insist that ABS—or any other classification society for title V—do the work required for certification.

Mr. **Bruce.** You have answered my next two questions. You do delegate where possible and you do not maintain a duplicate plan review process. Do you use ABS to do the plan review process for you?

Mr. **Nachtsheim.** There are very few plans that we review. We call them key drawings, and they are to assure that the ship is being built in accordance with the specifications and certain large parameters required by the Maritime Subsidy Board such as the overall cargo-carrying capacity, the speed, and of course, we ourselves are the only reviewer of the national defense feature aspects of the plans.

Mr. **Bruce.** Thank you, Mr. Chairman.

Mr. **Biaggi.** Captain Gibson, to get back to Philadelphia and that 100,000, I am just trying to apply that to realistic terms. In order to make it safe for the people in Philadelphia, they would need the advantage of all of your equipment?

Captain **Gibson.** I believe that is what the comments previously made here by the panel were alluding to, that an imposition of a 0.1 may have wide sweeping effects to the extent that we may wind up having everybody onboard our ships in disposable coveralls and suits, and how do we handle the common civilian in the work place in, say, downtown Philadelphia.

It becomes very difficult.

Mr. BIAGGI. Thank you very much, Captain, Doctor, Mr. Nachtsheim for your testimony.

Our next witness is Rear Adm. Henry Bell, Chief, Office of Merchant Marine Safety, U.S. Coast Guard, Department of Transportation, Washington, D.C.

STATEMENT OF REAR ADM. HENRY BELL, CHIEF, OFFICE OF MERCHANT MARINE SAFETY, U.S. COAST GUARD, DEPARTMENT OF TRANSPORTATION, WASHINGTON, D.C., ACCOMPANIED BY COMDR. ROBERT KRAMEK, NAVAL ENGINEERING DIVISION; W. K. LOWRY, SAFETY PROGRAMS DIVISION; COMDR. JOHN DELEONARDIS, MERCHANT VESSEL INSPECTION DIVISION; AND CAPT. JAMES HENSLEY, OFFICE OF HEALTH SERVICES

Admiral BELL. Mr. Chairman, members of the committee, I am Rear Adm. Henry H. Bell, Chief of the Office of Merchant Marine Safety, U.S. Coast Guard Headquarters.

I have accompanying me this morning Commander Kramek on my far left from our Naval Engineering Division. Sitting next to him is Mr. Lowry of our Safety Programs Division.

On my right is Commander Deleonardis from our Merchant Vessel Inspection Division, and Capt. John Hensley on the end from our Office of Health Services.

I want to thank you for the opportunity to talk to you about the Coast Guard's efforts with respect to asbestos exposures. The Coast Guard is concerned about the exposure to our own personnel, military and civilian and to the U.S. merchant seamen.

The Coast Guard program addressing asbestos on our cutters and shore stations is administered jointly by the Coast Guard Safety Programs Division and the Office of Health Services. Based on the input from all internal program areas, an integrated, comprehensive procedure to control potential chronic exposure to asbestos fibers has been developed.

The scope of the asbestos exposure hazard, particularly on our older vessels, has been the subject of an in-house study and monitoring program which has six primary objectives, which follow:

One was to quantify the airborne asbestos exposure in living and working environments aboard all classes of Coast Guard vessels.

Two was to develop a hazard evaluation plan to assist our naval engineers in assigning priorities for identified engineering corrections.

Three was to identify exposed personnel to our medical personnel for inclusion in a medical monitoring program.

Four, to establish a mechanism to provide hazard awareness in asbestos handling training to shipboard engineering personnel.

Five, to establish an asbestos exposure record keeping system for each unit.

Six, identify those vessels to be included in a periodic industrial hygiene air sampling program.

The results of the sampling part of the study to date indicate that the levels of exposure to airborne asbestos dust on vessels underway is well below the currently accepted OSHA standard.

However, recent scientific studies reveal there may be no, quote, "safe" level of asbestos exposure. Therefore, the Coast Guard has set an exposure standard for all of our employees in the working environment of 0.5 fibers per cubic centimeter of air for an 8-hour time-weighted average with a peak exposure of five fibers per cubic centimeter; that is, fibers longer than 5 micrometers.

In living environments, the exposure level is 0.1 fibers per cubic centimeter as a ceiling, again, for fibers longer than 5 micrometers. This level meets the National Institute of Occupational Safety and Health, NIOSH, revised recommended asbestos standards that were issued in 1976.

In a shipboard environment, we are concerned with ambient exposure levels on a 24-hour, 7-day-per-week basis. Therefore, this level represents the lowest level of detection presently using accepted methods and sampling techniques.

Several objectives of the sampling and exposure project have already been implemented. We recently published an instruction entitled "Asbestos Exposure Control" which details ventilation, safe working practices, personnel protective equipment, environmental monitoring, and asbestos training requirements for engineering personnel. Further evaluation and ongoing sampling on all our vessels and shoreside units will continue within the limits of available resources.

A major concern is the matter of exposure standards for our marine inspectors. Our inspectors are subject to Coast Guard exposure standards. However, they must work in environments covered by industrial standards based on an 8-hour day, 40-hour week as enforced by OSHA. We have not reconciled the difference in exposure standards due to the flexible nature of the inspector's work which normally subjects him to varying levels of exposure in several different places for varying lengths of time.

The Coast Guard has recently implemented an asbestos medical surveillance program for all exposed Coast Guard personnel in an effort to comply with the current Occupational Safety and Health Administration standard and Department of Labor regulations, Executive orders concerning health of Federal employees, and Environmental Protection Agency standards.

In addition to administration of this program, the Coast Guard's Health Services staff has participated in meetings with the National Academy of Sciences National Research Council panel on "Geochemistry of Fibrous Materials Related to Health Risks." This panel intends to evaluate evidence relating mineral particles to diseases experienced by asbestos workers to determine if chemical composition of asbestos should be considered in establishing health risks.

Another objective is to identify gaps in the data base and recommend research to provide a basis for future cause and effect studies.

The Coast Guard is also coordinating with the Environmental Epidemiology Branch of the National Cancer Institute on a case control study of cancer among Coast Guard personnel. The general objective of this study is to compare job titles among cancer cases in an attempt to identify job-related exposures that may be carcinogenic.

Coast Guard shipyard workers are also involved in this study. The purpose is to evaluate the mortality experience of civilian and military Coast Guard shipyard workers beginning with the identification of a cohort of persons employed by the Coast Guard 30 to 40 years ago. The names of 12,000 to 15,000 workers are expected to be obtained which will yield statistical tabulations utilizing computerized information on which to base future actions concerning health hazards, including asbestos.

The Office of Merchant Marine Safety has also been closely involved with several aspects of asbestos for many years. As you know, asbestos has been an indispensable ingredient in structural fireproofing materials used aboard merchant vessels, particularly passenger vessels.

Regulations requiring the use of steel and asbestos materials were the direct outgrowth of very serious major vessel fires which occurred on several passenger ships at the cost of thousands of lives during the 1920's and the 1930's. Structural fire protection materials, such as bulkhead panels, deck coverings, structural insulation and noncombustible materials, are approved for use in meeting structural fire protection requirements. Insulation has been used in the engineering spaces of steam and motor vessels primarily for the protection of personnel from the effects of high ambient heat levels, protection from contact with hot machinery, such as boilers, high pressure steam lines, engine exhaust trunks, and for protection from ignition of splashing fuel oil resulting from a vessel collision or broken high pressure fuel lines.

In the early 1970's the Coast Guard recognized some of the problems associated with the use of asbestos. Discussions were held with various manufacturers, shipbuilders, engineers, and designers which encouraged the substitution of nonasbestos insulation materials that could still meet our structural fire protection and personnel safety objectives while minimizing the potential for airborne asbestos dust contamination.

The majority of products presently approved for insulation material utilized on board merchant vessels contain locked-in asbestos. That is, the asbestos fibers are sealed into the product either during the manufacturing process or by a covering designed to contain the material.

The greatest hazard to personnel from asbestos is during the construction or installation phases whereby fibers of asbestos are released into the atmosphere due to sawing, sanding, or similar abrasive working conditions. On these occasions, current OSHA asbestos standards apply to shipyard employees, including applicable work practices, administrative and engineering controls.

There are other areas of concern with regard to the merchant seaman which include the possible excessive airborne contamination levels due to residual asbestos dust remaining after a fit-out or repair, the level of contamination while a vessel is underway in conducting routine maintenance and repair, and the ambient level in the living environment while underway.

We anticipate that substantial data will be collected during phase II of the MarAd study entitled "Assessment of Asbestos Concentrations in the Engine Room Environment of Marine Vessels" which will enable us to further evaluate this problem and offer long-term corrective action.

Several articles have been published also in the Proceedings of the Marine Safety Council for the general information of the marine industry in the hazards of toxic airborne substances, including asbestos.

In the near term, the Coast Guard currently has a work plan under development which will ultimately include regulations addressing asbestos work practice controls, personnel protective controls, asbestos environmental monitoring, and asbestos waste control practices for merchant seaman.

In summary, Mr. Chairman, I believe the Coast Guard has the expertise and regulatory authority to adequately address this problem. Sir, this concludes my prepared statement. I'll be pleased to answer any questions you may desire. Thank you, sir.

Mr. **Biaggi**. Thank you very much, Admiral Bell.

I do not know if you were present during the testimony of the Navy and OSHA and MarAd and NIOSH, but one thing came through very clearly, the Navy is in the forefront on this. They have established some procedures. They have an education program. They have surveillance. They have the respiratory equipment, and they have outer garments.

They have recognized the problem and are dealing with it. It would seem to me when you make reference to studies, outside of studies that MarAd is doing in phase II, that it might be superfluous.

I would think that just by calling the Navy, and they were gracious enough to respond and say that they would give you whatever material they have. They have cassettes. They are in the process of producing films. They have a host of things. They certainly are in the vanguard.

It seems really evident that the Coast Guard has not been on top of this one in a manner in which it should be, but it also seems clear to me that you can adjust that position quickly by talking to the Navy. Do you have any comment on that observation?

Admiral **Bell**. Yes, sir. I am here discussing two different aspects of the Coast Guard control procedure in respect to asbestos, and I think you will find, sir, that we have been reasonably responsive in respect to the Coast Guard ships, and that is where the parallel with the Navy comes in, with our own ships and in respect to the protection we have given our own personnel.

Mr. **Biaggi**. Well, stop. What protection have you given your personnel?

Admiral **Bell**. I specifically brought Commander Kramek here who can address it. He is the expert. I can talk a little bit, but I would rather have him talk directly. I think we have been responsive.

Commander Kramek, sir.

Commander **Kramek**. Yes, sir. Our Coast Guard naval engineering program for our cutters parallels the Navy program and utilizes all their data, their findings. Our repairs standards are——

Mr. **Biaggi**. Will you hold at that point? Then why did Admiral Bell testify that he wants more data?

Admiral **Bell**. Sir, in that respect, I was addressing the merchant vessel.

Mr. **Biaggi**. OK.

Admiral **Bell**. The merchant vessel we identify as needing more data since there has not been an extensive sampling technique or sampling undertaken, and that's the MarAd test or study I was referring to.

We within the Coast Guard have sampled approximately 15 percent of our total vessels which covered all class, and we do have data on our internal vessels. Our personnel are exposed at a different level than the merchant personnel are, and we cannot translate the two directly.

It was in respect to the merchant vessels I was talking about the need for additional data.

Mr. **Biaggi**. Thank you.

Admiral **Bell**. Do you want to go back to Commander Kramek?

Mr. **Biaggi**. Sure.

Commander **Kramek**. Approximately 2 years ago we started out on an asbestos control program for the Coast Guard cutters. We rely heavily upon NAVSHIP's technical manual instructions and OPNAV instructions developed by the Navy.

We have issued our own instructions which heavily paraphrase these and follow them specifically. We utilize Navy training programs to insure that at least one of our repair personnel on each ship are trained as per the Navy asbestos repair program.

We have surveyed our cutters immediately upon our awareness of the situation on our own ships which was brought out by asbestos readings taken on the Coast Guard cutter *Bibb* in New England dockside, which indicated that we had exposure levels above those that were acceptable by OSHA standards at that time.

We then initially sent all of our naval engineers throughout Coast Guard to survey every one of our ships for what repairs are needed to be made while we decided on a comprehensive sampling program to find out how bad our hazard was.

So we started to repair immediately loose, torn, hanging down type asbestos that was causing dust in the environment. At the same time, we started to measure, through a sampling program, what health hazard there was.

We took as an initial step a 15-percent sampling of all Coast Guard cutters of various classes, making sure we did one of each class, and it revealed that of those 15 percent we found two cutters that exceeded the acceptable standards for asbestos exposure. We immediately tied those two ships up and made the necessary repairs until they fell within standards.

All the rest of the cutters that we have surveyed fall within acceptable exposure standards. However, they have an extensive amount of asbestos aboard, and the repairs to the deteriorated asbestos aboard those ships is being accomplished on the older 327's. The majority of it has been done on the two ships that were the worst so far.

Mr. **Biaggi**. Then they are in the process of repair at sea?

Commander **Kramek**. No, sir. We have issued the same instructions to our fleet about a year ago as the Navy did. We do not allow any repairs to asbestos at sea or by the ship's force unless it is an emergency, an emergency being that you must get at a system to repair it so that the ship will be operational and you have asbestos in the way.

In that case, quite extensive personnel protection standards are issued identical to the Navy with inline respirators, exposure suits and all clothing being disposed of.

Mr. **Biaggi**. You have that onboard?

Commander **Kramek**. Yes, sir, we do.

Mr. **Biaggi**. It is heartening.

Commander **Kramek**. Well, we use the nuclear, biological and chemical warfare protective clothing that we use for NBC warfare for that purpose, and it is adequate to meet the need, sir.

Mr. **Biaggi**. I am glad to hear it.

The Navy said they would be willing to lend you some cassettes as an educational tool. You might avail yourself of their largesse. I got the impression they were not too anxious to give you what they had, but they did say they would.

What regulations do you have with relation to the merchant marine on the asbestos problem?

Admiral **Bell**. We have no regulations currently. We have a work plan, that we are formulating. The major hazard in a merchant vessel as opposed to the military vessel occurs during the fitout, the construction fitout, repair and shipbreaking, at which point the vessel is not under Coast Guard regulation, but it is under the industrial standards issued by OSHA.

What we are trying to identify, as I said earlier, sir, is the level of exposure during the normal routine work of the vessel which we do not have and are relying primarily on the MarAd study to let us know what the ambient level of asbestos is in respect to the living and working conditions on a merchant vessel.

Mr. **Biaggi**. It occurs to me that you started or testified that you commenced implementing safety and educational procedures with the Coast Guard 2 years ago, is that what you said? Some 2 years ago?

Admiral **Bell**. Between a year and 2 years ago for our own personnel.

Mr. **Biaggi**. Yes, I am aware of that, yes.

Admiral **Bell**. Yes, sir.

Mr. **Biaggi**. Then do you not think we should have initiated some activity with relation to the merchant marine?

Admiral **Bell**. Yes, sir. At the same time, we identified several risks which I addressed. We entered into the study and have had an extensive control procedure going at the highest risk area which was our Coast Guard yard, because there the ships undergo this breaking and working up.

We have talked with and been involved with the people from the National Cancer Center, NIH. We are torn, when we talk of the merchant vessels, sir, in coming up with a standard that we can justify from a health, safety and an economic point of view also.

It is an extremely difficult tradeoff. Obviously, we would like merchant vessels totally free of asbestos. That would be the ideal thing. Unfortunately, in the real world, we have a lot of vessels out there that have asbestos on them.

What we are trying to find out is the fact they have asbestos on them as it exists in the merchant vessel on a locked-in condition, is this a hazard to the person living onboard the vessel, and therefore, does it warrant the tremendous expense that would be involved in replacing that with a nonasbestos material which, until very recently, has not been available.

Mr. **Biaggi.** Mr. Nachtsheim testified that the vessels that are being constructed now or are under construction differential subsidies are being built with substitutes for asbestos.

But we have also had testimony that, given the practical perspective with relation to the maritime service, that ships have quick turnarounds and much of their repairs are being done at sea which puts, I believe, an added responsibility on the Coast Guard.

I would like to go back a couple of years where we had some jurisdictional difficulties between OSHA and the Coast Guard as far as the health of the seamen was concerned, and we clearly established that it was the prerogative of the Coast Guard.

And if I recall correctly, the Coast Guard made that statement also and fought to preserve its turf, I guess, as OSHA would have liked to usurp it. I get the feeling, Admiral, that especially in relation to the merchant marine we have not been that current. And I say "we" because I have an affinity for the Coast Guard, but I also like to look at it in a very objective fashion.

We do not have a regulation. You dealt with your own personnel, and I am glad you did, but at the same time, something should have been done with relation to the merchant marine, and I am not so sure that even OSHA standards are adequate, but that will be determined, I guess, by some further discussions.

Admiral **Bell.** Could I address a couple of the comments, sir? I do not feel there is any disagreement between the Coast Guard and OSHA at this point.

Mr. **Biaggi.** Well, because we have clearly established the jurisdictional lines, but there was a time when there was conflict.

Admiral **Bell.** Well, we have sort of agreed. In fact, I just initialed off this morning for our Commandant's signature a memorandum of understanding which essentially says we agree to agree.

I think we have a very close working relationship with them. They are in a position to provide us with expertise we do not have in respect to health and safety standards or reinforce what we have. We can provide them with a lot of reinforcement in the shipboard arena, the maritime arena where they do not have expertise.

We are working in cooperation with them on the health standards for the merchant marine.

Mr. **Biaggi.** I think they testified to that fact, and it was good to note.

Admiral **Bell.** We did institute, because we have total control over, the requirements within the Coast Guard. It is an in-house problem. We have the total control over our resources, our personnel, and we moved very fast on that, the health monitoring program, our repair standards.

It is more complex when one discusses a regulatory effort because one has to be responsive and address every aspect of a regulatory action, and one must have some substantive basis for the actions they are undertaking.

I think you probably are aware of the difference in benzene exposure levels that has been going on about the country as an example of the problem one encounters when one sets a health standard and the tremendous economic impact it can have.

And therefore you would like to be sure when you go forward that you are being responsive to the need, but you are also being responsive to all the problems the industry has.

It is a very delicate balance, sir.

Mr. BIAGGI. I do not quarrel with that. I think Mr. Walker used a word, and I pointed it out: "feasible," feasible standard. I understand that. We are not doctrinaire in our approach and in our thinking.

But I like to see things expedited, because it becomes clear that our merchant marine has been relatively neglected. They have made the allegation, and testimony so far has not disabused me of that notion.

Assuming that you establish a standard for the merchant marine, what authority would you rely on to implement the standard?

Admiral BELL. I believe, sir—I cannot quote directly here, but we have several statutory authorities that permit the publishing of regulations for both the vessel safety and the health and safety of the personnel on board, and I'm sure that in my briefing book that it is here someplace, sir. OK.

We feel that we have the authority under 46 U.S.C. 375, 390B, 391, 391A, 416, 404, 481 to go ahead and issue not only safety standards but also health and personnel safety standards. In short, sir, I do not think we have ever felt that we do not have the authority.

Mr. BIAGGI. The point I am trying to make, really, is assuming you establish a program of safety, and you have equipment on board, how can you compel the utilization of that equipment.

Admiral BELL. I want to see if I can be responsive to that.

Mr. BIAGGI. How do we know it will be used? How do you know the procedures will be properly implemented? Or what can we do? What can you do to make certain?

Admiral BELL. Well, the certainty is almost always after the fact in the safety aspect, sir. We can make it the responsibility of the master or his delegated personnel that they follow, let us say, emergency repair procedures that are set forth, whether we quote OSHA standards which will probably parallel it very close since apparently they seem to have been accepted as being responsive to the hazard.

We would specify the repair procedures and then put the responsibility on the master to assure that anytime a repair was undertaken in respect to asbestos that the procedures specified were followed.

There is no other way I know one can enforce such a thing without a policeman-like action.

If I could add one thing, sir, I think that part of it is an easier part because that parallels what the Navy has done, the Coast Guard has done, what OSHA does in the repair facilities, the fitout yard, specifying the standard to be used, the respirators, the ventilation, the types of cleanup.

The difficult problem is the one that we have not identified, and I referred to earlier—the exposure that a person gets during the normal day-to-day living 24 hours aboard a ship 7 days a week. That is what has been the hangup, if you will, sir, on proceeding ahead.

And that is, of course, the period of time during which the merchant seaman has his greatest exposure, during those, not just the short period when engineering repairs are being undertaken but just his normal day-to-day living.

Mr. BIAGGI. I think the point was made that contrasted to shoreside facilities, the seamen on board, he lives there and he works there, hence that should be a factor in determining what standards should be established.

Admiral BELL. Yes, sir. That, again, is one of the things that complicates the problem. The repair procedure can follow an industrial procedure because, in all likelihood, he does not get exposed more than 8 hours a day for a 40-hour week, and that is the comparable industrial shoreside standard.

Nobody knows what the 7-day-a-week, 24-hour-a-day standard should be, and that is why if we find out first if we have a problem, then we are going to have to address it in a conservative manner.

Mr. BIAGGI. Admiral Ratti?

Mr. RATTI. I think that one of the things that concerns the chairman is this problem of emergency repairs on the ship underway. Do you not have enough data now to know that that is dangerous and could you not now issue regulations controlling those repairs and prescribing the conditions under which they are made?

Admiral BELL. Yes, sir, we could. I guess we get a little more ambitious than that trying to find out if there were other exposures of a greater hazard.

Mr. RATTI. Well, it seems that that is one hazard that has been clearly identified, and it concerns, I think, the chairman and this subcommittee, as to why action has not been taken at least on that hazard.

There does not seem to be any need to wait for 2 more years of data to issue regulations to control that hazard.

Admiral BELL. I guess if there is any difference at all, it is between what our understanding of the amount of, quote, "emergency repairs" are undertaken underway in the merchant marine and that of, I guess, some other witnesses that have preceded me; that is, the degree of the problem as opposed to the military ship where there is an awful lot of underway repair that used to be performed.

Mr. RATTI. Well, the other witnesses, as you may know, have testified that the underway repair is extensive on merchant vessels and is getting more extensive, and I think that was one of the things that concerned us, whether there were any regulations to limit it, to prohibit it, or to require the master to log it every time it took place and report it, anything like that.

I guess the next question is—I understand you are working on regulations in this area. When do you expect them to be issued?

Admiral BELL. Sir, you are familiar with the procedure we go through. The project as it currently is that we are looking for a notice of proposed rulemaking roughly in the June time-frame.

Mr. Ratti. So that the final regulations would not be out until when? Next year sometime?

Admiral Bell. Yes, sir, if it follows the normal procedure, and that presumes that there is not a lot of adverse comment to the proposal we are making that would require us to go back and further justify or that the economic impact and the environmental impact accompanying it were not challenged. It is a lengthy process.

Mr. Ratti. And you do not think that there is a sufficient emergency to require a faster or more emergent procedures?

Admiral Bell. That is sort of a difficult question to answer. It is a serious problem. We have got a lot of resources dedicated to it. We have been looking at the MarAd study very strongly as the basis to proceed further with this work.

We possibly could break out the one portion of the overall problem as we see it that you are addressing. That does pose us some problem just looking at it—I am thinking just off the top of my head—in the regulatory process we have to go through. Possible, but I am not sure of the side consequences. Having studied the one approach, I would have to look carefully at the other approach, sir.

Mr. Ratti. One of our previous witnesses urged that maintenance, repair, and asbestos removal operations be controlled to the greatest extent possible, and I think that is one of the concerns of the subcommittee whether or not the Coast Guard is taking immediate and effective action to do that on merchant vessels.

Admiral Bell. That is sort of a judgment call whether it is immediately effective, sir. We are aware in having talked to many shipping companies that many of the shipping companies have voluntarily entered into asbestos control procedures for repairs made aboard ship.

Some of the companies are undertaking a monitoring program with respect to their own vessels. So I do not feel that the industry is not being responsive to the hazard as a whole. I think there is response to the hazard out there without the Government coming down with its heavy hand.

Mr. Biaggi. We will take a 10-minute recess in order for me to respond to the vote. [Pause.]

I am advised there will be a number of votes and my absence will extend beyond 10 minutes. It will be 30 or 40 minutes. Mr. Bruce has a number of questions. We have a series of questions.

And rather than keep you waiting and putting this thing on well into the afternoon, why do we not just conclude the meeting. We will submit the questions to you in writing and ask you to respond.

Admiral Bell. Yes, sir, I would be pleased to respond for the record.

Mr. Biaggi. Thank you.

The meeting is adjourned.

Admiral Bell. Thank you, sir.

ADDITIONAL QUESTIONS FROM REPRESENTATIVE DON YOUNG, AND RESPONSES

1. What materials are available to suitably replace asbestos for insulation purposes?

Response: Substitutes available for replacing asbestos insulation include, rock wool, fiberglas, calcium silicate, gypsum, ceramics and certain plastics.

2. Is marinite paneling one of such materials?

Response: There is a type of marinite paneling approved which is asbestos free and consists of calcium silicate.

3. What hazards, if any, do these substitute materials pose for seafarers from the standpoint of either health or safety?

Response: From the standpoint of personnel safety, a potential hazard exists as to the adequacy of this substitute material to protect against high heat levels and flames. As more experience is gained in the use of such materials, their limitations will become more apparent. From the standpoint of health there still remains a potential hazard from inhalation of dusts or fibers produced from abrasive working conditions or deterioration of the covering.

4. What consideration has been given to the adoption of OSHA standards on at least an interim basis?

Response: We currently have a regulatory proposal under consideration which will address OSHA-type work practices on an interim basis until long range studies are completed.

5. Will Coast Guard standards affecting the use and replacement of asbestos be applicable to both inspected and uninspected vessels?

Response: We do not have the same level of control over uninspected vessels as inspected vessels in regard to health and safety of the crew; therefore, our ability to enforce these regulations on uninspected vessels would be hindered.

6. What is the relative degree of hazard or exposure in each category?

Response: At this junction, based on preliminary monitoring of inspected operational ships, we have found that asbestos exposure does not exceed the current OSHA standards. However there is some indication that the NIOSH recommended standards may be exceeded.

On uninspected vessels the relative degree of exposure will, in my estimation, be higher since the Coast Guard does not approve, or inspect, the vessels nor control the personnel on uninspected vessels.

[Whereupon, at 12:15 p.m., the hearing adjourned at the call of the Chair.]

MARPOL PROTOCOL

THURSDAY, MAY 8, 1980

House of Representatives,
Subcommittee on Coast Guard and Navigation,
Committee on Merchant Marine and Fisheries,
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:33 a.m., in room 1334, Longworth House Office Building, Hon. Mario Biaggi (chairman of the subcommittee) presiding.

Present: Representatives Biaggi and de la Garza.

Staff present: Ricardo A. Ratti, Rudolph V. Cassani, Duncan C. Smith III, John Bruce, Sidney A. Wallace, and Cynthia M. Wilkinson.

Mr. Biaggi. The meeting is called to order.

The Subcommittee on Coast Guard and Navigation is meeting today to consider H.R. 6665, a bill to implement the protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973, and for other purposes.

This bill is similar to a bill the subcommittee considered during the prior Congress but did not act on. This was primarily due to the administration's desire to pursue international efforts through the Intergovernmental Maritime Consultative Organization to modify the 1973 Marine Pollution Convention. This desire was intensified when a number of tanker casualties affecting our marine environment took place during the winter of 1976–77.

The proposals that were adopted concerning design, construction, equipment, inspection, and operational requirements were more stringent and extensive than anything previously considered by the international maritime community. The end product was the 1978 Marine Pollution Protocol, which incorporates and modifies the 1973 Marine Pollution Convention.

Many of the provisions of these treaties have been implemented by the enactment of the Port and Safety Tanker Act of 1978. The proposed legislation would implement those remaining aspects that require implementation, such as the establishment of a regulatory system for determining the adequacy of reception facilities for oil or chemical wastes. Adequate reception facilities are necessary, since the treaty requires each signatory to insure that there are facilities to receive oily and noxious liquid residues or mixtures as would remain aboard for disposal as a result of the treaty prohibitions of dumping at sea.

The bill also provides for a system of controls, establishes certain criminal and civil penalties, contains a number of enforcement mechanisms, and repeals oil pollution legislation that implemented prior treaties.

The existing law comprehensively details many of the regulations and standards of the 1954 Oil Pollution Convention. Existing law also comprehensively details many of the tanker safety regulations and standards of the 1973 Marine Pollution Convention and the 1978 Marine Pollution Protocol. On the other hand, the bill before us provides for implementation of the remaining treaty regulations and standards by regulations to be promulgated by the Secretary of Transportation. One of the questions we have is whether or not this is the route to follow.

During our earlier deliberations on reception facilities, there were complaints from the small independent vessel operators and the small terminal operators that they were finding it very difficult to establish new reception facilities, particularly those for chemical residues or mixtures, and that they were not particularly pleased with this type of legislation.

The subcommittee would like to hear the views of all interested parties and would like to know what, if any, changes have transpired in 2 years. I believe we have a number of witnesses who can provide us with sufficient information to permit us to make the necessary judgments.

Mr. Smith. Mr. Chairman, I have a statement from Congressman Young to insert in the record.

Mr. Biaggi. Without objection, so ordered.

Also we will submit a copy of the bill and departmental report.

[The following was received for the record:]

Statement of Hon. Don Young, a Representative in Congress From the State of Alaska

Mr. Chairman, we take up consideration of H.R. 6665, the "Act to Prevent Pollution From Ships". This legislation is designed to implement the protocol of 1978 relating to the International Convention for the Prevention of Pollution From Ships—the "MARPOL Protocol".

In order to implement the MARPOL Protocol, the bill contains provisions applying the Protocol to all U.S. vessels and foreign vessels entering our ports, addressing the transportation of oil and chemicals in bulk, and establishing vessel and reception facility certification. Further, the bill contains provisions addressing regulatory authority and enforcement, which is primarily vested in the Coast Guard, and other provisions fulfilling the United States' obligations under the Convention.

Mr. Chairman, I look forward to working closely with you and the other members of the Subcommittee to examine this legislation, its effect on the maritime industry, and the administrative and enforcement provisions needed for its implementation.

Mr. Biaggi. I request unanimous consent to place in the record of this hearing a memorandum from the Independent Liquid Terminals Association dated May 2, 1980, and a statement from the Honorable John M. Murphy, chairman of the Merchant Marine and Fisheries Committee. Without objection, so ordered.

[The following were received from the record:]

Statement of Hon. John M. Murphy, Chairman, Committee on Merchant Marine and Fisheries

The Subcommittee on Coast Guard and Navigation considers today the legislation necessary to complete action by the Congress on the treaty known as the MARPOL Protocol of 1978. The treaty was elaborated by an international conference in February 1978. For this country, it was partially implemented in October of the same year by enactment of the Port and Tanker Safety Act of 1978, Public Law 95-474. But two steps remain to be taken: bringing the treaty into force internationally and, concurrently, completing its implementation by the United States. The full process to achieve these goals will require some time to complete, because the ratification procedures of many other nations are involved. But the Congress of the

United States can complete its work on the matter during this session, and indeed we should do so. For that reason, I introduced by request legislation proposed by the administration, H.R. 6665, a bill to implement the Protocol of 1978 relating to the International Convention for the Prevention of Pollution From Ships, 1973.

The MARPOL Protocol was the direct result of U.S. proposals for international action. In the wake of some 16 tanker casualties in and around U.S. waters during the winter of 1976-77, the U.S. Government went to the Inter-Governmental Maritime Consultative Organization (IMCO) with a detailed set of proposals applying to tankers. The proposals were to adopt new design, construction, and equipment standards and new procedures for vessel inspection and certification. As a package, the U.S. initiatives were more stringent and extensive than anything previously proposed internationally. IMCO member nations decided to alter the organization's work schedule to permit a series of technical meetings culminating in a special international conference. Eleven months after the administration announced the American initiatives, the conference produced two treaties, one on safety measures and the other on pollution prevention—the MARPOL Protocol.

The United States pushed the international community very hard for fast action and stringent measures. Both were obtained. It then fell to the U.S. government to show our readiness to adopt the treaty standards and practices as our own. The Congress incorporated many of these standards and practices into the Port and Tanker Safety Act of 1978. This act mandated national implementation of standards, but did not implement the MARPOL Protocol in all its provisions and, of course, was not part of the treaty ratification process. This bill would, when enacted into law, complete the implementation of MARPOL Protocol provisions, thus serving as a companion piece to the Senate's advice and consent to ratification of that treaty.

This bill was recently introduced in the Senate as well (S. 2118). I am sure that its consideration there will end impetus to deliberations on advice and consent to ratification of the MARPOL Protocol itself.

Principal features of the bill are as follows:

First, the act would apply to U.S.-Flag ships, wherever located, and to foreign-flag ships entering U.S. ports.

Second, technical annexes I and II of the protocol, governing oil and chemicals in bulk respectively, would apply only to seagoing ships—equivalent provisions already apply to vessels on inland waters.

Third, authority to administer the act is delegated to the Secretary of the Department in which the Coast Guard is operating.

Fourth, procedures for certification, inspection, and investigation are established.

Fifth, sanctions are specified, including civil and criminal penalties, detention orders, liability in rem, and referral to flag state.

Sixth, the Secretary is required to establish criteria for determining the adequacy of reception facilities of a port or terminal, to make such determinations on request, and to exclude ships from ports and terminals not having reception facilities certified as adequate. ("Reception facilities" means facilities capable of accepting residues and tank washings from ships at the termination of voyages or upon entry into shipyards.)

Seventh, an incident reporting system is established in conformance with protocol provisions.

Eighth, the act would implement the amendment procedures of the protocol, including rapid amendment procedures for technical annexes and appendixes.

Ninth, the act would be effective upon the date of enactment or on the date the MARPOL Protocol becomes effective as to the United States, whichever is later.

In April and June 1978, the Subcommittee on Coast Guard and Navigation of the Committee on Merchant Marine and Fisheries conducted hearings on a wide range of subjects bearing on ports and tank vessels. Before the subcommittee at that time was legislation proposed by the administration and introduced by request. The purpose of this bill, H.R. 10390, was to implement the International Convention for the Prevention of Pollution From Ships, 1973. Considerable testimony was taken on the issues raised by this bill. H.R. 6665 is a modification of the previous bill. Changes were designed chiefly to account for the terms of the new treaty, the MARPOL Protocol, which incorporated by reference the original 1973 convention. Thus, most substantive provisions of the two bills are identical, and much of the testimony taken in 1978 remains pertinent. This suggests that only limited hearings need be held on the new bill before dispositive action can be taken.

The MARPOL Protocol would require governments to insure the provision at ports and terminals of reception facilities adequate to meet the needs of ships without causing undue delay. The new bill, as did the old one, provides the mechanism for the United States to meet this treaty obligation. This matter was a subject of some concern to witnesses at the 1978 hearings. Most of the concern related to reception facilities that would serve the needs of ships carrying chemicals in bulk, as the treaty would impose stringent limitations on the discharge at sea of tank washings containing the residue of chemical cargoes.

One of the problems encountered in 1978 was the lack of concrete information about existing reception facilities and the demand for new facilities that would be generated by entry into force of the treaty. The time since the 1978 hearings has permitted gathering much of the needed information on existing facilities and the assessment of future needs based on voyage patterns, ship configurations, and trade characteristics. While work remains to be done to place the problem fully in perspective, the assessment thus far indicates that providing for reception facilities is clearly a manageable problem, both economically and technically. An important factor here is the establishment of construction and equipment requirements by the Port and Tanker Safety Act, such as segregated ballast tanks and crude oil washing. These requirements will reduce the accumulation of oily water slops aboard ship and will therefore reduce the need for facilities to receive those slops.

An important modification to the 1973 convention was effected by the 1978 MARPOL Protocol. This is the provision that would delay the entry into force of annex II—governing carriage of chemicals in bulk—for a period of 3 years after the articles and annex I—governing oil—enter into force. This was specifically adopted to allow time for the complex procedures and high standards imposed by annex II to be met. The United States acceded to this delay, deemed necessary by many other governments, so that the worldwide regime to reduce oil pollution could be placed into effect as soon as possible. Though the discharge limitations and reception facility requirements of annex II will be delayed, the United States has already implemented annex II in part by adopting rules based on the IMCO Chemical Code. These rules establish improved safety and construction standards for ships transporting most of the products on the annex II list of noxious substances.

The eyes of the maritime world are now on the United States to see what action we will take on the two tanker safety and pollution prevention protocols negotiated in 1978. Some governments have indicated that they will ratify only after the United States has demonstrated its purpose and good faith by ratifying the treaties. The United States put on the pressure and many other nations supported us in elaborating the treaties. They now look to us for action. Therefore, it is time for the Congress to act.

H.R. 6665 will serve as the vehicle for action by the House. Given concurrent action by the Senate, both on the treaty and on the implementing legislation, the Congress of the United States can in 1980 demonstrate to the world that this Nation's 1977 initiatives to protect the marine environment were serious and resolute, not merely political posturing. The subcommittee, in acting speedidly and purposefully on H.R. 6665, will set a worthy example in the Congress toward meeting this goal.

ILTA

MEMORANDUM May 2, 1980

TO: The Honorable Mario Biaggi
Chairman, Subcommittee on Coast Guard and Navigation
House Committee on Merchant Marine and Fisheries

FROM: John Prokop, President, ILTA

SUBJECT: H.R. 6665 - The requirement to make ports and terminals receive vessel oily and toxic wastes and the conflict with EPA RCRA hazardous waste storage regulations.

Thank you for your kind invitation to testify on H.R. 6665, a bill which among other things, would let the government, by regulation, require that bulk liquid terminals become reception facilities for oily and hazardous wastes from vessels.

As you know, ILTA is unalterably opposed to this legislation (and any other legislation) which could force terminals into the vessel waste storage and disposal business.

The reasons why ILTA opposes this legislation at this time are as follows:

1. Presently, we assume that these oily and hazardous waste tank cleanings are being dumped at sea. This bill would merely take this problem off the hands of the vessel operators and dump it into the lap of the terminal operators.

2. Presently, according to EPA, only about 120 viable waste disposal sites exist in the United States. Again, according to EPA comments in the press, many of these presently are being sued for improper disposal under today's lax laws.

   When the Resource Conservation and Recovery Act "hazardous waste storage and disposal regulations" become final, EPA estimates that a good number of these 120 sites will not be able to afford the cost of becoming EPA certified sites, and many will not be willing to assume the tremendous potential liability imposed on such waste operations. They will close down.

3. If bulk liquid terminals and ports do not have certified sites to which they can send vessel waste materials, the terminals and ports will have to become the waste storage and disposal sites.

   WE DON'T BELIEVE IT IS FAIR FOR THE GOVERNMENT TO CREATE A CATCH-22 SITUATION WHEREIN WE ARE CAUGHT BETWEEN RCRA AND THE DEEP BLUE SEA.

4. If a terminal is required by regulations under a Merchant Marine Committee approved law to become a disposal facility, and under RCRA regulations, it could not afford the expense or could not meet the physical requirements, IT WOULD HAVE TO GO OUT OF BUSINESS.

POSITIVE APPROACH - On the next page we suggest a positive approach to utilize a recent MARAD - MIT Study on waste reception facilities and some viable courses of action so that we can join in supporting this bill.

INDEPENDENT LIQUID TERMINALS ASSOCIATION
1101 15TH STREET, N.W.
WASHINGTON, D.C. [illegible] • 202-[illegible]

POSITIVE APPROACH:

1. Consult with the Maritime Administration which has had MIT examine this problem and just published a study on it released in March 1980.
2. Have MIT and Marad testify before the Committee.
3. ILTA will be glad to testify if another date is available during or after the week of May 12, 1980. (I must be in Los Angeles during the week of the hearing and on such short notice I cannot find a qualified member who can come to Washington to testify.)
4. Have the Maritime Administration or Coast Guard do an economic impact study.
5. Assure that facilities or port authorities that cannot financially or physically comply with RCRA hazardous waste disposal requirements are not put out of the terminaling business because the merchant marine law would require them to accept vessel wastes. (This may not be within the scope of jurisdiction of the Merchant Marine Committee, but we need this assurance.)
6. Permit us to review the RCRA regulations which were due April 30, but delayed by OMB because of their impact on business, and I believe are due to be released on Monday, May 5, 1980, or sometime during that week.
7. SEMINAR - MIT has proposed to MARAD that a seminar be held on this vessel-terminal waste disposal problem. All concerned parties would gather and discuss solutions to problems.

   The result would be helpful to both industry and the Congress. If industry can't come to an agreement, then Congress would have to act and let the chips fall where they may.

THERE IS NO NEED TO ACT HASTILY OR IMMEDIATELY. I discussed the matter with Admiral Mike Benkert of AIMS. He estimates that it would be six to eight years before the 1978 Amendment to the Maritime Pollution Convention of 1973 (embodied in H.R. 6665) is signed by enough major maritime nations to make it enforceable. While Admiral Benkert supports immediate action on the bill, we think haste will create more problems than it will solve.

We should be able to resolve this problem in a year's time and, if it is legislatively possible to eliminate obstacles, the Committee should be able to report out the bill in the spring of 1981.

ILTA appreciates your offer of an opportunity to testify as we did on H.R. 10390 in 1977. However, since we will be on the West Coast during the week of the hearing, we will submit a statement for the record unless another day is made available for further hearings.

Respectfully submitted,

John Prokop

John Prokop
President

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96TH CONGRESS
2D SESSION

H. R. 6665

To implement the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 28, 1980

Mr. MURPHY of New York (by request) (for himself and Mr. BIAGGI) introduced the following bill; which was referred to the Committee on Merchant Marine and Fisheries

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A BILL

To implement the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Act to Prevent Pollution from Ships".

SEC. 2. Unless the context indicates otherwise, as used in this Act—

(1) "MARPOL Protocol" means the Protocol of 1978 Relating to the International Convention for the

Prevention of Pollution from Ships, 1973, done at London on February 17, 1978. This Protocol incorporates and modifies the International Convention for the Prevention of Pollution from Ships, 1973, done at London on November 2, 1973;

(2) "convention" means the International Convention for the Prevention of Pollution from Ships, 1973, including Protocols I and II and Annexes I and II attached thereto;

(3) "discharge" and "harmful substance" and "incident" shall have the meanings provided in the convention;

(4) "marine environment" means the high seas and all waters subject to the jurisdiction of the United States;

(5) "owner" means any person holding title to, or in the absence of title, any other indicia of ownership of, a ship or terminal, but does not include a person who, without participating in the management or operation of a ship or terminal, holds indicia of ownership primarily to protect a security interest in the ship or terminal;

(6) "operator" means—

(a) in the case of a ship, a charterer by demise or any other person, except the owner, who is responsible for the operation, manning, victualing, and supplying of the vessel, or

(b) in the case of a terminal, any person, except the owner, responsible for the operation of the terminal by agreement with the owner;

(7) "person" means an individual, firm, public or private corporation, partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body;

(8) "Secretary" means the Secretary of the department in which the Coast Guard is operating;

(9) "ship" means a vessel of any type whatsoever operating in the marine environment, including hydrofoils, air-cushion vehicles, submersibles, floating craft whether self-propelled or not, and fixed or floating platforms; and

(10) "terminal" means an onshore facility or an offshore structure located in the navigable waters of the United States or subject to the jurisdiction of the United States and used, or intended to be used, as a port or facility for the transfer or other handling of a harmful substance.

SEC. 3. (a) This Act applies to—

(1) a ship of United States registry or nationality, or one operated under the authority of the United States, wherever located;

(2) a ship registered in or of the nationality of a country party to the MARPOL Protocol, or one operated under the authority of a country party to the MARPOL Protocol, while in the marine environment, except while on the high seas; and

(3) a ship registered in or of the nationality of a country not a party to the MARPOL Protocol, under subsection (c) of this section.

(b) This Act does not apply to—

(1) a warship, naval auxiliary, or other ship owned or operated by the United States when engaged in noncommercial service; or

(2) any other ship specifically excluded by the MARPOL Protocol.

(c) The Secretary shall prescribe regulations applicable to the ships of a country not a party to the MARPOL Protocol while in the marine environment, except while on the high seas, to ensure that their treatment is not more favorable than that accorded ships of parties to the MARPOL Protocol.

(d) The heads of Federal departments and agencies shall prescribe standards applicable to ships excluded from this Act by subsection (b)(1) of this section and for which they are responsible. The Secretary shall prescribe standards applicable to ships excluded from this Act by subsection (b)(2) of this section. Standards prescribed under this subsection, applicable to ships excluded from this Act by subsection (b), shall ensure, so far as is reasonable and practicable without impairing the operations or operational capabilities of such ships, that such ships act in a manner consistent with the MARPOL Protocol.

SEC. 4. (a) Unless otherwise specified herein, the Secretary shall administer and enforce the MARPOL Protocol and this Act. In administering and enforcing the MARPOL Protocol and this Act, Annexes I and II of the MARPOL Protocol shall be applicable only to seagoing ships.

(b) The Secretary shall prescribe any necessary or desired regulations to carry out the provisions of the MARPOL Protocol or this Act.

(c) The Secretary may utilize by agreement, with or without reimbursement, personnel, facilities, or equipment of other Federal departments and agencies in administering the MARPOL Protocol, this Act, or the regulations thereunder.

SEC. 5. (a) The Secretary shall designate those persons authorized to issue on behalf of the United States the certificates required by the MARPOL Protocol. A certificate required by the MARPOL Protocol shall not be issued to a ship which is registered in or of the nationality of a country which is not a party to the MARPOL Protocol.

(b) A certificate issued by a country which is a party to the MARPOL Protocol has the same validity as a certificate issued by the Secretary under the authority of the MARPOL Protocol.

(c) A ship required by the MARPOL Protocol to have a certificate—

(1) shall carry a valid certificate onboard in the manner prescribed by the authority issuing the certificate; and

(2) is subject to inspection while in a port or terminal under the jurisdiction of the United States.

(d) An inspection conducted under subsection (c)(2) of this section is limited to verifying whether or not a valid certificate is onboard, unless clear grounds exist which reasonably indicate that the condition of the ship or its equipment does not substantially agree with the particulars of its certificate. Subsection (c)(2) of this section shall not limit the authority of any official or employee of the United States under any other treaty, law, or regulation to board and inspect a ship or its equipment.

(e) In addition to the penalties prescribed in section 9 of the Act, a ship required by the MARPOL Protocol to have a certificate—

(1) which does not have a valid certificate onboard; or

(2) whose condition or the condition of its equipment does not substantially agree with the particulars of the certificate onboard;

shall be detained by order of the Secretary at the port or terminal where the violation is discovered until, in the opinion of the Secretary, the ship can proceed to sea without presenting an unreasonable threat of harm to the marine environment. The detention order may authorize the ship to proceed to the nearest appropriate available shipyard rather than remaining at the place where the violation was discovered.

(f) If a ship is under a detention order under this section, the Secretary of the Treasury, upon the request of the Secretary, may refuse or revoke—

(1) the clearance required by section 4197 of the Revised Statutes of the United States, as amended (46 U.S.C. 91); or

(2) a permit to proceed under section 4367 of the Revised Statutes of the United States (46 U.S.C. 313) or section 442 of the Tariff Act of 1930, as amended (19 U.S.C. 1443).

(g) A person whose ship is subject to a detention order under this section may petition the Secretary, in the manner prescribed by regulation, to review the detention order. Upon receipt of a petition under this subsection, the Secretary shall affirm, modify, or withdraw the detention order within the time prescribed by regulation.

(h) A ship unreasonably detained or delayed by the Secretary acting under the authority of this Act is entitled to compensation for any loss or damage suffered thereby.

SEC. 6. (a) The Secretary, after consultation with the Administrator of the Environmental Protection Agency, shall establish regulations setting criteria for determining the adequacy of reception facilities of a port or terminal and shall establish procedures whereby a person in charge of a port or terminal may request the Secretary to certify that the port's or terminal's facilities for receiving the residues and mixtures containing oil or noxious liquid substance from seagoing ships are adequate.

(b) In determining the adequacy of reception facilities required by the MARPOL Protocol at a port or terminal, the Secretary may consider, among other things, the number and types of seagoing ships using the port or terminal, including their principal trades.

(c) If, upon inspection, reception facilities of a port or terminal are adequate to meet the requirements of the MARPOL Protocol and the regulations established hereunder, the Secretary shall, after consultation with the Administrator of the Environmental Protection Agency, issue a certificate to that effect to the applicant. A certificate issued under this subsection—

(1) is valid until suspended or revoked by the Secretary for cause or because of changed conditions; and

(2) shall be available for inspection upon the request of the master, other person in charge, or agent of a seagoing ship using or intending to use the port or terminal.

The suspension or revocation of a certificate issued under this subsection may be appealed to the Secretary and acted on by him in the manner prescribed by regulation.

(d) The Secretary shall periodically cause to be published in the Federal Register a list of the ports or terminals holding a valid certificate issued under this section.

(e) Except in the case of force majeure, the Secretary shall deny entry to a seagoing ship required by the convention to retain onboard while at sea, residues and mixtures containing oil or noxious liquid substances, if—

(1) the port or terminal is one required by the MARPOL Protocol or regulations hereunder to have adequate reception facilities; and

(2) the port or terminal does not hold a valid certificate issued by the Secretary under this section.

(f) The Secretary is authorized to conduct surveys of existing reception facilities in the United States to determine measures needed to comply with the MARPOL Protocol.

SEC. 7. (a) As soon as he has knowledge of an incident, the master or other person in charge of a ship shall report it to the Secretary in the manner prescribed by Article 8 of the convention.

(b) Upon receipt of the report of an incident involving a ship, other than one of United States registry or nationality or one operated under the authority of the United States, the Secretary shall take the action required by Article 8 of the convention.

SEC. 8. (a) It is unlawful to act in violation of the MARPOL Protocol, this Act, or the regulations issued thereunder. The Secretary shall cooperate with other parties to the MARPOL Protocol in the detection of violations and in enforcement of the MARPOL Protocol. To that end, the Secretary shall use all appropriate and practical measures of detection and environmental monitoring, and shall establish adequate procedures for reporting violations and accumulating evidence.

(b) Upon receipt of evidence that a violation has occurred, the Secretary shall cause the matter to be investigated. In any investigation under this section the Secretary may issue subpoenas to require the attendance of any witness and the production of documents and other evidence. In case of refusal to obey a subpoena issued to any person, the Secretary may request the Attorney General to invoke the aid of the appropriate district court of the United States to compel compliance. Upon completion of the investigation, the Secretary shall take the action required by the MARPOL Protocol and whatever further action he considers appropriate under the circumstances. If the initial evidence was provided by a party to the MARPOL Protocol, the Secretary, acting through the Secretary of State, shall inform that party of the action taken or proposed.

(c) While at a port or terminal subject to the jurisdiction of the United States, a ship to which the MARPOL Protocol applies may be inspected by the Secretary—

(1) to verify whether or not the ship has discharged a harmful substance in violation of the MARPOL Protocol or this Act; or

(2) to comply with a request from a party to the MARPOL Protocol for an investigation as to whether the ship may have discharged a harmful substance anywhere in violation of the MARPOL Protocol. An investigation may be undertaken under this clause only when the requesting party has furnished sufficient evidence to allow the Secretary reasonably to believe that a discharge has occurred.

If an inspection under this subsection indicates that a violation has occurred, the investigating officer shall forward a report to the Secretary for appropriate action. If a report made under this subsection involves a ship, other than one of United States registry or nationality or one operated under the authority of the United States, the Secretary shall undertake to notify the master of the ship concerned and, acting in coordination with the Secretary of State, shall take any additional action required by Article 6 of the convention.

(d) Remedies and requirements of this Act supplement and neither amend nor repeal any other provisions of law, except as expressly provided in this Act. Nothing in this Act shall limit, deny, amend, modify, or repeal any other remedy available to the United States or any other person, except as expressly provided in this Act.

SEC. 9. (a) A person who knowingly violates the MARPOL Protocol, this Act, or the regulations issued thereunder shall, for each violation, be fined not more than $50,000 or be imprisoned for not more than five years, or both.

(b) In addition to any other penalty prescribed by law, a person who—

(1) violates the MARPOL Protocol, this Act, or the regulations issued thereunder is liable for a civil penalty of not more than $10,000 for each violation; or

(2) makes a false, fictitious or fraudulent statement or representation in any matter in which a statement or representation is required to be made to the Secretary under the MARPOL Protocol, this Act, or the regulations thereunder, is liable for a civil penalty of not more than $1,000 for each such statement or representation.

(c) The Secretary may assess any civil penalty incurred under this section and may in his discretion remit, mitigate, or compromise any penalty. A penalty shall not be assessed hereunder unless the alleged violator is given notice and the opportunity to be heard on the alleged violation. Upon the failure to collect a civil penalty assessed under this section, the Secretary may request the Attorney General to institute a civil action in a United States district court to collect the penalty.

(d) A ship operated in violation of the MARPOL Protocol, this Act, or the regulations thereunder is liable in rem for any pecuniary fine or penalty incurred under this section, and may be proceeded against in the United States district court of any district in which it may be found.

(e) If any ship subject to the MARPOL Protocol or this Act, its owner, operator, or person in charge is liable for a penalty under this section, or if reasonable cause exists to believe that the ship, its owner, operator, or person in charge may be subject to a penalty under this section, the Secretary of the Treasury, upon the request of the Secretary, shall refuse or revoke—

(1) the clearance required by section 4197 of the Revised Statutes of the United States, as amended (46 U.S.C. 91); or

(2) a permit to proceed under section 4367 of the Revised Statutes of the United States (46 U.S.C. 313) or section 443 of the Tarriff Act 1930, as amended (19 U.S.C. 1443).

Clearance or a permit to proceed may be granted upon the filing of a bond or other surety satisfactory to the Secretary.

(f) Notwithstanding subsection (a), (b), or (d) of this section, if the violation is by a ship registered in or of the nationality of a country party to the MARPOL Protocol, or one operated under the authority of a country party to the MARPOL Protocol, the Secretary, acting in coordination with the Secretary of State, may refer the matter to that country for appropriate action, rather than taking the actions required or authorized by this section.

SEC. 10. (a) A proposed amendment to the MARPOL Protocol received by the United States from the Secretary-General of the Inter-Governmental Maritime Consultative Organization pursuant to Article VI of the MARPOL Protocol, may be accepted on behalf of the United States by the

President following the advice and consent of the Senate, except as provided for in subsection (b) of this section.

(b) A proposed amendment to Annex I or II, appendices to the Annexes, or Protocol I of the MARPOL Protocol, received by the United States from the Secretary-General of the Inter-Governmental Maritime Consultative Organization pursuant to Article VI of the MARPOL Protocol, may be the subject of appropriate action on behalf of the United States by the Secretary of State following consultation with the Secretary, who shall inform the Secretary of State as to what action he considers appropriate at least thirty days prior to the expiration of the period specified in Article VI of the MARPOL Protocol during which objection may be made to any amendment received.

(c) Following consultation with the Secretary, the Secretary of State may make a declaration that the United States does not accept an amendment proposed pursuant to Article VI of the MARPOL Protocol.

SEC. 11. (a) Except as provided in subsection (b) of this section, any person having an interest which is, or can be, adversely affected, may bring an action on his own behalf—

(1) against any person alleged to be in violation of the provisions of this Act, or regulations issued hereunder;

(2) against the Secretary where there is alleged a failure of the Secretary to perform any act or duty under this Act which is not discretionary with the Secretary;

(3) against the Secretary of the Treasury where there is alleged a failure of the Secretary of the Treasury to take action under section 9(e) of this Act.

(b) No action may be commenced under subsection (a) of this section—

(1) prior to sixty days after the plaintiff has given notice, in writing and under oath, to the alleged violator, the Secretary concerned, and the Attorney General; or

(2) if the Secretary has commenced enforcement or penalty action with respect to the alleged violation and is conducting such procedures diligently.

(c) Any suit brought under this section shall be brought—

(1) in a case concerning an onshore facility or port, in the United States district court for the judicial district where the onshore facility or port is located;

(2) in a case concerning an offshore facility or offshore structure under the jurisdiction of the United States, in the United States district court for the judi-

cial district nearest the offshore facility or offshore structure;

(3) in a case concerning a ship, in the United States district court for any judicial district wherein the ship or its owner or operator may be found;

(4) in any case, in the District Court for the District of Columbia.

(d) The court, in issuing any final order in any action brought pursuant to this section, may award costs of litigation (including reasonable attorney and expert witness fees) to any party including the Federal Government, whenever the court determines such an award is appropriate.

(e) In any action brought under this section, if the Secretary or Attorney General are not parties of record, the United States, through the Attorney General, shall have the right to intervene.

SEC. 12. On the effective date of this Act—

(a) the Oil Pollution Act, 1961, as amended (75 Stat. 402; 33 U.S.C. 1001 et seq.) is repealed. Any criminal or civil penalty proceeding under that Act for a violation which occurred prior to the effective date of this Act may be initiated or continued to conclusion as though that Act had not been repealed; and

(b) the Oil Pollution Act Amendments of 1973 (87 Stat. 428, Public Law 93-119) are repealed.

SEC. 13. (a) Section 4417a of the Revised Statutes of the United States, as amended (46 U.S.C. 391a), is further amended as follows—

(1) by amending subparagraph (c) of paragraph (2) by deleting the word "or" in clause (ii); by deleting the period at the end of clause (iii) and inserting "; or "; and by adding a new clause (iv) as follows:

"(iv) designated as a noxious liquid substance under Annex II of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973.";

(2) by amending subparagraph (E) of paragraph (3) to read as follows:

"(E) which is constructed or adapted to carry, or which carries, oil or any hazardous materials in bulk as cargo or in residue.".

(b) The Federal Water Pollution Control Act, as amended, is further amended in the first sentence of subsection 311(b)(3) by striking the phrase "the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended" and inserting in lieu thereof the phrase "the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973".

SEC. 14. (a) Except as provided in subsection (b) of this section, this Act is effective upon the date of enactment, or on the date the MARPOL Protocol becomes effective as to the United States, whichever is later.

(b) The Secretary and the heads of Federal departments shall have the authority to issue regulations, standards, and certifications under subsections 3(c), 3(d), 4(b), 5(a), 6(a), 6(c), and 6(f) effective on the date of enactment of this Act. Subsection 13(a)(2) is effective upon the date of enactment of this Act.

(c) Any rights or liabilities existing on the effective date of this Act shall not be affected by this enactment. Any regulations or procedures promulgated or effected pursuant to the Oil Pollution Act, 1961, as amended, remain in effect until modified or superseded by regulations promulgated under the authority of the MARPOL Protocol or this Act.

[Executive Communication No. 1383]

THE SECRETARY OF TRANSPORTATION,
Washington, D.C., April 20, 1979.

Hon. THOMAS P. O'NEILL, Jr.,
Speaker of the House of Representatives,
Washington, D.C.

DEAR MR. SPEAKER: On behalf of the President, there is transmitted herewith a draft of a proposed bill: "To implement the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973, and for other purposes."

This legislative proposal is an integral part of the President's program to control oil pollution in the marine environment. It implements the basic articles and other provisions of the 1978 Protocol Relating to the International Convention for the Prevention of Pollution from Ships, 1973, signed at London on February 17, 1978, and repeals or amends existing law made obsolete by, or which conflicts with, the 1978 Protocol.

This legislation was introduced as S. 2346 and H.R. 10390 in the 95th Congress to implement the 1973 Convention for the Prevention of Pollution from Ships (Marpol). As a result of the February 1978 Tanker Safety and Pollution Prevention (TSPP) Conference the international legal status of the 1973 Marpol Convention has been altered. The 1973 Convention is incorporated into the 1978 Marpol Protocol, subject to the modifications contained in the Protocol. Thus, ratification of the 1978 Marpol Protocol rather than the 1973 Marpol Convention is being requested by the Administration. Similarly, certain provisions of the implementing legislation must be altered to conform to the revised international legal status of the 1973 Marpol Convention.

The 1978 Protocol evidences an international acceptance of the Tanker Safety and Pollution Prevention proposals advocated by the President in his message to Congress of March 17, 1977. Although the Protocol does not in every respect adopt the President's proposal, on balance it is felt that the Protocol achieves the objectives of those proposals. The Protocol also permits delay in implementation of mandatory Annex II to the 1973 Marpol Convention for three years. This Annex would strictly regulate the carriage of various noxious liquid substances in bulk, and would require each government party to the Convention to ensure adequate reception facilities for the needs of bulk chemical carriers calling at their ports. The obligation to provide reception facilities for residues of over 200 noxious substances carried in bulk has presented severe technical problems. Because Annex II is a mandatory annex under Marpol 1973, the inability of nations to assure compliance with Annex II requirements has delayed the implementation of Annex I (oil pollution) by discouraging ratification. It was the feeling of the United States delegation at the TSPP Conference (including representatives of the EPA and of private environmental groups) that the substantial positive impact of Annex I should not be delayed by the difficulties of implementing Annex II. The 1978 Marpol Protocol, therefore, allows delay for three years of the implementation of Annex II, though it remains a mandatory annex. Though the discharge limitations and reception facility requirements of Annex II will be delayed, the United States has already implemented part of Annex II by adopting rules based on the IMCO Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk. These rules are contained in 46 CFR 153 and became effective April 12, 1978. They establish improved safety and vessel construction standards for vessels transporting the majority of the products on the noxious substances list. Additionally, the improved vessel construction standards of Annex I will apply to vessels which carry other noxious liquid substances as well as oil.

To accomplish the purposes of the 1978 Protocol, the references in the bill to the 1973 Marpol Convention have been amended to refer to the new 1978 Marpol Protocol. In addition, this bill has been revised by adding a new subsection (f) to Section 6, authorizing the Secretary to survey existing waste reception facilities to determine the extent to which the United States will have to upgrade its facilities to comply with the 1978 Marpol Protocol.

The 1973 Convention as incorporated in the 1978 Marpol Protocol requires that new and existing tankers by fitted with equipment intended to ensure conformance to its requirements. Examples of the items made mandatory by the 1973 Convention include oil discharge monitoring and control systems, slop tanks, and piping and pumping arrangements for all tankers in excess of 70,000 deadweight tons, if contracted for after December 31, 1975, or delivered after December 31, 1979. Certificates issued to vessels which fully comply with applicable requirements of the 1973 Convention are to be recognized by all parties to the 1973 Convention. The 1978

Marpol Protocol adds to existing international standards stringent equipment requirements for segregated ballast and crude oil washing.

The 1973 Convention, as incorporated in the 1978 Marpol Protocol, includes provisions designed to prevent discharges into the marine environment. This is an extension of the prohibition in the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, against discharges into the sea. The term "marine environment" was not defined by the conference, due, in large part, to the fact that the issue of the extent of a nation's maritime jurisdiction is one of the basic questions to be resolved by the Law of the Sea Conference. The approach taken in the implementing legislation is to define the term "marine environment" in a manner which gives the maximum possible application to the 1978 Marpol Protocol. This approach is clearly consistent with the intent of the conference, with our national goals, and with our world leadership responsibilities. However, the intent of the conference that Annexes I and II of the 1973 Convention, as incorporated in the 1978 Marpol Protocol, are to be applied only to sea-going vessels is also clear. Therefore, this limited application is provided for in the proposed legislation and, when deposited, our instrument of ratification will be accompanied by a memorandum of understanding to that effect. The proposed legislation does not include application of the optional annexes, Annexes III (pollution of sea by packaged or containerized material), IV (sewage pollution), and V (garbage pollution). If at a later time those Annexes are determined to be acceptable to the United States, they will be the subject of an amendatory legislative proposal.

The 1973 Convention, as incorporated in the 1978 Marpol Protocol, provides for an innovative amendment procedure to make possible the rapid updating of techincal provisions without requiring the traditional, but more cumbersome treaty revision process. The rapid amendment process will be used to reflect new technological developments and, therefore, is necessary to ensure the most effective control of pollution from ships operating in the marine environment.

In addition to implementing the basic provisions of the 1973 Convention, as incorporated in the 1978 Marpol Protocol, the draft bill imposes criminal and civil sanctions of sufficient magnitude to ensure compliance with the mandates of the 1973 Convention as incorporated in the 1978 Protocol, and the implementing legislation and regulations. Finally, the remaining applicability of the implementing legislation for the 1954 Convention for non-parties to the 1978 Marpol Protocol is minimal. Therefore, that legislation would be repealed by this proposal. Conforming amendments have also been made to the Federal Water Pollution Control Act, as amended, and to the Tank Vessel Act, as amended by Section 5 of the Port and Tanker Safety Act of 1978 (P.L. 95-474).

This is not a major legislative proposal within the meaning of Executive Order 11821. The vessel construction standards which will be necessary to implement Annexes I and II of the Convention are being promulgated under the Tank Vessel Act, as amended. The requirements for reception facilities will depend on the extent of the implementing regulations and the outcome of the survey authorized by subsection 6(f) of the draft bill.

Enactment of this legislative proposal will result in additional monetary requirements for the Federal Government as follows:

Fiscal year:	
1	$350,000
2	350,000
3	350,000
4	350,000
5	350,000

It is recommended that the proposed legislation be enacted by Congress.

The Office of Management and Budget has advised that this proposed legislation is in accord with the Administration's objectives.

Sincerely,

BROCK ADAMS.

[The draft bill became H.R. 6665 as introduced.]

U.S. ENVIRONMENTAL PROTECTION AGENCY,
Washington, D.C., July 17, 1980.

Hon. MARIO BIAGGI,
Chairman, Subcommittee on Coast Guard and Navigation, Committee on Merchant Marine and Fisheries, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: This is in response to the request of the Subcommittee for the views of the Environmental Protection Agency on H.R. 6665, a bill to implement the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973. The Environmental Protection Agency supports this bill and urges the Committee to report it favorably.

The Protocol, which modifies and incorporates the 1973 Convention, was developed by the 1978 Tanker Safety and Pollution Prevention Conference which was convened by the Intergovernmental Maritime Consultative Organization at the request of the United States. Representatives of EPA participated in the negotiations of the 1973 Convention and its 1978 Protocol and we believe that implementation of the Protocol will promote a high standard for the control of pollution in the marine environment on a worldwide basis as well as provide better protection for our own valuable coastal areas.

Many of the Protocol requirements have been implemented by the United States, such as limitations on oil discharges from vessels and vessel equipment and construction design standards. The primary provisions remaining for implementation include port reception facilities for oil (Annex I) and noxious liquid substances (Annex II).

Under section 6 of the bill, the Secretary of the Department of Transportation, in consultation with the Administrator of the Environmental Protection Agency, will establish regulations and criteria to determine the "adequacy" of port reception facilities. The EPA intends to work closely with the Department in formulating these regulations in accordance with the concepts of adequacy developed and accepted in discussions at the international level, including the capacity of reception facilities and the availability of waste treatment processes at the receiving facility.

Section 13(b) of the H.R. 6665 amends section 311(b)(3)(A) of the Clean Water Act by substituting reference to the Protocol for the existing reference to the superseded 1954 Conventon. This section of the Clean Water Act provides an exception to discharge limitations for permissible discharges under international law. Section 311(b)(3)(A) refers only to oil, however, and should be amended to encompass permitted discharges of hazardous substances under the Protocol. Therefore, we recommend the Subcommittee amend section 13(b) of H.R. 6665 to include a provision deleting the words "of oil" from section 311(b)(3)(A) of the Clean Water Act.

As I indicated at the outset, the Environmental Protection Agency strongly supports implementation of the 1978 Protocol as a significant international effort to control pollution of the oceans and coastal areas. We urge the Subcommittee and the Congress to act now to adopt this important Protocol as befits the United States role of leadership in this area.

The Office of Management and Budget has advised that there is no objection to the presentation of this report form the standpoint of the Administration's program.

Sincerely yours,

DOUGLAS M. COSTLE.

Mr. BIAGGI. The first witness is Rear Adm. Henry Bell, Chief of the Office of Merchant Marine Safety, U.S. Coast Guard. Admiral?

STATEMENT OF REAR ADM. HENRY H. BELL, CHIEF, OFFICE OF MERCHANT MARINE SAFETY, U.S. COAST GUARD, DEPARTMENT OF TRANSPORTATION; ACCOMPANIED BY COMDR. GEORGE F. IRELAND, ASSISTANT DIVISION CHIEF, MERCHANT MARINE TECHNICAL DIVISION, OFFICE OF MERCHANT MARINE SAFETY, U.S. COAST GUARD, DEPARTMENT OF TRANSPORTATION; CAPT. CHARLES R. CORBETT, CHIEF, MARINE ENVIRONMENTAL RESPONSE DIVISION, OFFICE OF MARINE ENVIRONMENT AND SYSTEMS, U.S. COAST GUARD, DEPARTMENT OF TRANSPORTATION; AND FRITS WYBENGA, CHEMICAL ENGINEER, CHEMICAL ENGINEERING BRANCH, CARGO AND HAZARDOUS MATERIALS DIVISION, OFFICE OF MERCHANT MARINE SAFETY, U.S. COAST GUARD, DEPARTMENT OF TRANSPORTATION

Admiral BELL. Good morning, sir. I am Rear Adm. Henry Bell, Chief of the Office of Merchant Marine Safety of the U.S. Coast Guard. Sir, I am accompanied this morning by Captain Corbett, who is the Chief of the Marine Environmental Response Division of our Office of Marine Environment and Systems; on my immediate left is a representative from our Merchant Marine Technical Division, Commander Ireland; and on my right is Mr. Wybenga of our Cargo and Hazardous Materials Division, both from the Office of Merchant Marine Safety.

I have a short statement, sir, I would like to read for the record, if I may.

Mr. BIAGGI. Please proceed.

Admiral BELL. Thank you, sir. It is a pleasure for me to be here today to discuss the proposed legislation, H.R. 6665, to implement the protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships of 1973 This bill includes implementation of reception facility requirements, the primary remaining technical requirement for which legislative authority has not been provided.

The protocol, which modifies and incorporates the 1973 convention, is a production of the February 1978 Tanker Safety and Pollution Prevention Conference, better known as TSPP. This conference was convened at the request of the United States under the auspices of the Intergovernmental Maritime Consultative Organization, IMCO, and was a significant step forward in realizing the goals expressed in the President's oil pollution prevention initiatives of March 1977.

In the United States, most of the requirements of the MARPOL Protocol relating to oil have already been implemented. Regulations limiting oil discharges to the extent set out in MARPOL of 1973 were initially promulgated on October 14, 1975. These regulations are now applicable to domestic vessels and all foreign vessels when they are operating in the navigable waters of the United States.

Equipment and construction standards of the MARPOL Protocol intended to reduce both operational and accidental discharge of oil by tank vessels were incorporated into the Port and Tanker Safety Act of 1978. On November 19, 1979, the Coast Guard promulgated regulations under the authority of the act implementing these requirements. These regulations apply to domestic vessels and foreign vessels when they call at U.S. ports. The only significant oil pollution reduction provisions of the MARPOL Protocol remaining for implementation in Federal regulations are the requirements for reception facilities and the requirements limiting oil discharges from vessels, other than tank vessels, when they carry oil in bulk. The authority for the latter is already available and regulations are planned. Authority for the issuance of regulations for reception facility requirements is not available at this time, but would be provided in H.R. 6665.

The availability of reception facilities is an essential element of the MARPOL Protocol, for without the reception facilities it becomes meaningless to require retention of residues onboard ship. Although not specifically required by U.S. regulation, reception facilities for ships generating oily wastes have been indirectly required since October of 1975, when operational discharges by tank ships engaged in the domestic oil trade were limited. Reception facilities have been made available to allow these vessels to legally dispose of oil residues retained onboard. To date, reception facilities needed for the domestic trade have proven to be adequate.

As you are aware, Mr. Chairman, the United States does not engage in the export of crude oil. Therefore, no reception facility needs will stem from the foreign crude oil trade. The United States does export product oil; however, the export volume is small relative to our domestic trade. Based on trade information and the fact that the MARPOL Protocol significantly decreases the need for reception facilities through equipment and construction standards, the Coast Guard has concluded that reception facilities which are already provided for the domestic trade are deemed to be largely adequate to meet any demand stemming from the foreign oil trade. In addition, the rapidly increasing price of oil may provide an economic incentive for the recovery of oil wastes. I do not anticipate any problems meeting the requirements for oil reception facilities contained in the MARPOL Protocol.

Mr. Chairman, as you may know, the February 1978 TSPP Conference found it necessary to provide nations more time to solve the complex technical issues of annex II, which deals with noxious liquid substances. The result is that annex II will not come into effect until 3 years after annex I is in force. However, we see no reason why U.S. implementing legislation should not address the two annexes at the same time, so long as there is a provision for their coming into force in accordance with the agreed upon international time table.

In the case of noxious liquid substances under annex II, the United States has promulgated regulations for the design and construction of chemical tankers consistent with the annex II regulations. These require vessels carrying noxious liquid substances to be built in accordance with the IMCO Code for the construction and equipment of ships carrying dangerous chemicals in bulk.

With regard to operational discharges of these substances, most of the discharge restrictions contained in annex II apply to vessels when operating outside of the contiguous zone. In this regard, the conforming amendment to the Clean Water Act in subsection 13(b) of H.R. 6665 contains an omission. The omission has been highlighted by the EPA's recent designation of hazardous substances under that act.

Existing subsection 311(b)(3)(A) of the Clean Water Act exempts permissible discharges of, quote, "oil," unquote, under the 1954 Oil Pollution Convention from the act. Subsection 13(b) of H.R. 6665 would merely substitute the 1978 protocol for the 1954 convention. This would relieve only a part of the problem, since it is necessary to exempt permissible discharges of annex II substances which, in the context of the Clean Water Act, are hazardous substances. In order to conform the Clean Water Act to the protocol discharges of annex II, substances which are permissible thereunder should similarly be exempted from subsection 311(b)(3)(A) of the act.

Thus, we would recommend that the words "of oil" in subsection 311(b)(3)(A) of the Clean Water Act be deleted. This will insure that full recognition is given to the scheme developed in the protocol for the discharge of both oil and noxious liquid substances.

As in the case of annex I, requirements for reception facilities for noxious liquid substances must be developed. It appears that hardware standards developed under annex II, combined with the high cost of treating noxious substance residues, will encourage chemical vessel operators to minimize their needs for reception facilities so that only low-volume, concentrated wastes will be discharged to reception facilities. The volume of wastes anticipated and the frequency with which they will be received indicates that rolling stock receiving the waste from chemical tankers and transporting these wastes to existing industrial waste treatment facilities may be the most reasonable method of providing reception facilities under annex II.

The suitability of shoreside treatment facilities for handling noxious wastes will be evaluated by EPA under the Resource Conservation and Recovery Act. The volumes of annex II wastes anticipated are small relative to the volumes of noxious wastes produced industrially and, as such, are not expected to place an unreasonable burden on existing shoreside treatment facilities.

Mr. Chairman, permit me to take this opportunity to emphasize the importance the administration places on the ratification of the MARPOL Protocol and the enactment of H.R. 6665. These actions together will demonstrate to the international community our resolve to enhance protection of the marine environment, giving due regard to the accomplishments of the international community.

Thank you, Mr. Chairman. We would be pleased to answer any questions you may wish to ask.

Mr. **Biaggi**. Thank you, Admiral Bell.

On page 4 of your testimony, you state, "The volumes of annex II wastes anticipated are small relative to the volumes of noxious wastes produced industrially and are not expected to place an unreasonable burden on existing shoreside treatment facilities." On what do you base that statement?

Admiral **Bell**. Primarily, sir, on the work we have done looking into the disposal of the chemical wastes and our experience with the ships. We produce in this country a large volume of industrial waste, which I think has repeatedly made the headlines, along with the problem of disposing of it.

The volume generated by the ships are very small compared to that, and if we are able to handle the industrial wastes ashore, I do not see that the additional wastes the ship will introduce via the requirement for reception facilities should be a problem.

Mr. **Biaggi**. How are we currently handling the industrial wastes ashore? Past practice indicates that they just find dump sites—most of them illegal—and a terrible condition has developed in this country. The fact that they are dumping does not mean they are doing it properly. I think that creates a serious question of whether or not we are able to dispose of the chemicai waste.

Admiral **Bell**. I think you have here a very serious problem facing the Nation. But with the volumes we are talking about here, we have two things in our favor. One is that the requirements within the IMCO Chemical Code and within MARPOL require very efficient stripping systems. They require a very sophisticated manner of bringing down to an absolute minimum the amount of residues left in the tank.

Fortunately, we have going for us an economic incentive, because in the chemicals you are talking about relativelv high-priced products; you do not want to throw them away.

Mr. Biaggi. Excuse me, but I think the terminal operators disagree with you on that score as to whether there is sufficient financial incentive. We will hear from them at another time, but they have already expressed a negative attitude with relation to that premise.

Admiral Bell. Well, sir, if I could, we have not completed all studies. Mr. Wybenga here has looked into this and, in fact, has written a paper on this subject for the Society of Naval Architects, which I would be pleased to make available for the members of the subcommittee if they want it.

Mr. Biaggi. We have copies of it.

Admiral Bell. I understand what the smaller terminal operators are saying. Currently, the ships are coming in with chemical wastes that must be legally disposed of. Similarly, they are faced with the problem that they, too, have to clean their tanks ashore periodically, and there must be a legitimate way of disposing of those wastes.

I cannot give you the relative volume between the two disposal problems, but they are already faced with a disposal problem just from their own receiving terminal operation that they must address. So I do not think it is something that is brand new to the chemical independent terminal operators. It will be an added burden, yes, but I would presume that, like the disposal of any other waste, there is a cost involved and that cost will have to be absorbed in the transportation cost.

Mr. Biaggi. Well, how have reception facilities been made available to legally dispose of both oil and chemical residues retained on board?

Admiral Bell. Well, for oil, industry has reasonably solved the problem, as we foresee it. There is a distinct economic advantage with the current price of oil of recovering that oil We are not privy, obviously, to all of the economics of the various waste treatment plants, but it appears that it would be relatively profitable because there is no problem in accepting either crude oil residue or product oil residue.

In chemical waste disposal, I have less information. Maybe Mr. Wybenga could address that question.

Mr. Wybenga. Facilities to receive wastes for the chemical tanker operators are largely the same types of facilities that are available to handle shoreside wastes at present. We have looked at one port in particular—the Port of Houston—and done a survey in that area. We have talked to manufacturers of chemical products there. There were approximately 30 terminals, and of those 30, approximately 5 had facilities to handle the wastes in-house.

In addition to that, there were an additional five or six independent operators who would receive waste from both terminal-generated waste and would also be willing to receive waste from vessels. We looked at that to be the scheme for receiving wastes in the case of annex II.

Mr. Biaggi. Were those facilities adequate, in your judgment?

Mr. Wybenga. In my judgment, yes, they are, sir.

Mr. Biaggi. Terminal operators oppose this legislation because they feel that the present problem of disposal at sea of oil and chemicals will be shifted to the operators of the terminals without proper planning of reception, treatment and disposal of wastes, particularly with relation to chemical wastes.

Would you care to make an observation on that, Admiral?

Admiral **Bell.** Annex II covers, of course, a range of chemicals. All chemicals are not the same, and in developing annex II, this problem was recognized. Annex II has a scheme of dividing the chemicals, I believe, into four gradations, of which the most toxic and the one most harmful to the environment is the one that must be granted the most stringent requirements in respect to discharge. That is essentially a shoreside discharge regime.

The others do recognize disposal at sea, and there are provisions therein for their disposal. This does not answer all of the problems, though, because if a parcel tanker or a chemical tanker comes in and offloads one product, he is required to take on another product and to wash her tanks in between. She is in port and has to dispose of the residue before she can outload the cargo. That currently exists and is currently being handled through mostly mobile reception facilities—tank barges, tank trucks, or tank cars—taking the residues to the waste disposal sites.

We do not envision this bill, sir, as requiring that every terminal operator have on his premises a fully operational discharge facility that can handle anything that a ship coming to his terminal may require him to receive. What we are interested in is that there are provisions to take the residues from the ship and that they be legally accounted for under the schemes that EPA is talking about and properly disposed of. If that happens to be a contract to someone with a tank truck that will then haul it, regardless of the distance, to an industrial waste disposal facility that is qualified to handle those materials, we feel that is accomplishing the intent of MARPOL and the act; that is, that the materials are not discharged into the sea in contravention to the international agreement.

Mr. **Biaggi.** I am sure the terminal operators will be delighted to hear that. I think they were talking in terms of construction of permanent reception facilities.

Admiral **Bell.** That certainly is not our intent, and I think Mr. Wybenga could add to my statement, sir.

Mr. **Wybenga.** If I might just make a few points on the requirements or the need for reception facilities as we envision them, there are basically two mandatory requirements for reception facilities under annex II.

The first is in the case of category A wastes which must be washed from the tanks before the ship is permitted to take on another cargo. In looking at the trade data that we have available, we have found that of the 13 category A substances that have, to date, been assigned to the annex, only about 3 of them are shipped in any large quantities. When I say "large quantities," in many cases this is just one or two tankloads per port per year.

Tetraethyl lead is one of these substances. It happens to be required to be carried in a dedicated tank, so that each shipment of tetraethyl lead would not require a washing to a reception facility. Other products are napthalene and creosote. Creosote is currently listed in category A, but it has since been demoted to category B.

Really, what I am saying is that there is very little category A trade in the United States. Therefore, we do not envision a large volume of category A residues coming ashore.

The other reason that the annex would require that wastes come ashore is in the case of category B and C substances. The annex requires that in the case of category B, the vessel must be capable of pumping its residue down to 1 cubic meter. In the case of category C, that figure is 3 cubic meters.

In looking at the pumping capabilities of vessels that we see coming into the United States, we have found that, largely, vessels are already capable of reaching below the 1 cubic meter, even in wing tanks. Therefore, we do not envision a large volume of wastes coming ashore from products in categories B and C.

The only products which we do envision coming ashore in the case of where residues exceed these limits is in the case of very high-viscosity products, and there are only roughly one or two of these substances in the entire annex; also, in the case of high-melting-point products which would tend to cling on the walls of the tanks and you could anticipate a good amount of residue left on the walls of the tank.

These are really the only two places where the annex mandates taking them ashore, and we feel that the other needs of vessels will tend to balance themselves out. The economics will really determine whether or not a vessel desires to pump wash water that we would not require him to come ashore for—whether he wants to do that or not, or whether he wants to discharge that residue at sea.

Mr. **Biaggi**. So, essentially, what you are saying is that we are not really talking about large volume.

Mr. **Wybenga**. We are not talking about large volumes. In addition, with relation to the infrequency with which waste will be pumped ashore, at IMCO we have also been working to develop very efficient washing systems which will remove 99.5 percent of the residue in the tank by just applying 5 metric tons of water to that tank, which is roughly 1,200 gallons of water, and easily picked up by a medium-sized vacuum system.

Mr. **Biaggi**. I think that may put a whole new light on the subject. I think that is important enough to be made public and have universal distribution. When does the Coast Guard expect to submit a report on that subject, or do you have it within your contemplation? It would alleviate many fears; I will tell you that.

Admiral **Bell**. I am kind of looking around for a report, because I did not know we were due one, sir.

Mr. **Biaggi**. Well, when will the Coast Guard let the world know that the problems are minimal, if at all?

Admiral **Bell**. Well, this was one of the reasons that Mr. Wybenga was encouraged to submit the paper that I made reference to previously, and I think these points are discussed in there, sir, and this type of paper does get wide distribution in the marine community. I did not think we were putting out a report, as such.

Mr. **Biaggi**. Well, maybe I used the term improperly; it was just another way of asking you what the Coast Guard was doing in letting the whole marine community know about it. I think we owe it to the community, because obviously this is the basis for their fears.

Admiral **Bell.** Yes, sir.

Mr. **Biaggi.** If this testimony is accurate, and I have no reason to believe otherwise, then it should be distributed so we can allay their fears and have unanimity with relation to the legislation.

Admiral **Bell.** Sir, there is one point I think we should add here that may give them some fear. We were talking about the amount of legally required disposal facilities available under the convention. If the practices of the particular vessel and the terminal operator are such that they have worked out a different agreement, they may be handling more waste than we are talking about here as a legal requirement.

Perhaps they have grown used to in the past handling arrangement for the discharge of more than would be required here for economic reasons. But, certainly, the amount of waste disposal for chemicals we are talking of under the requirements of the convention and as implemented by the bill before us, we consider, is minimal.

There are certainly problems with any waste disposal, but they are not of the huge volumes we are talking of with oil, and they are not such huge volumes that, as I say, tank trucks could not handle them if the facility has no way of even storing them as an interim measure.

Mr. **Biaggi.** I ask unanimous consent to have the report by Fritz Wybenga, a chemical engineer with the U.S. Coast Guard, introduced in the record. Without objection, so ordered.

THE SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS
One World Trade Center, Suite 1369, New York, N.Y. 10048

Paper to be presented at the Spring Meeting/STAR Symposium
Houston, Texas, April 25-28, 1979

A Preliminary Assessment of the Demand for Reception Facilities Stemming from the Implementation of MARPOL '73

No. 10

Frits Wybenga, Visitor, U.S. Coast Guard, Washington, D.C.

ABSTRACT

The 1973 Marine Pollution Convention calls for the provision of reception facilities for the receipt of oily and noxious wastes produced in bulk shipment. To assess the need for reception facilities in U.S. ports, international and domestic requirements were analyzed, operations of crude, product and chemical tankers were studied, relevant tanker characteristics were determined and a survey of the foreign and domestic trade was conducted. The needs were compared with the reception facilities known to be available. The survey identifies forty-one oil loading ports and twenty-eight chemical ports in which the adequacy of reception facilities must be evaluated. Problems which must be resolved are identified. The report shows that the demand for oil reception facilities has been significantly reduced through progressively more stringent segregated ballast and crude oil washing requirements and gives an optimistic outlook on the current adequacy of oil reception facilities. Largely as a result of domestic legislation on hazardous wastes, the development of facilities for noxious substances is progressing. However, much work remains before the adequacy of reception facilities for oil and noxious substances can be ensured.

INTRODUCTION

The International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL 73) limits the quantities of oil and noxious liquid substances which may be discharged to the sea as operational discharges. Annex I of the Convention addresses oil while Annex II addresses noxious liquid substances. As part of the regulatory scheme to reduce operational discharges, each annex calls for the provision of reception facilities in ports to receive waste water contaminated with oil or noxious substances derived from ships trading in these ports and operating under the Convention. Wastes which are anticipated include contaminated ballast water, tank cleaning slops, bilge water and sludge from fuel oil processing, however, ballast water and tank cleaning slops will present the most significant demand for reception facilities.

The provision of reception facilities has been the subject of considerable controversy. Under the proposed implementing legislation for MARPOL 73, continued port operation will be conditional upon the provision of adequate reception facilities. To date, the actual demand for reception facilities has not been clearly identified resulting in much speculation over what will be required. Annex I is scheduled for implementation by 1981, and Annex II is scheduled for implementation by 1984. Reception facilities must be available at the times of implementation. Changes in the demand for oil reception facilities have already occurred as a result of modifications to MARPOL 73 made at the 1978 Tanker Safety and Pollution Prevention Conference (TSPP) held in London and through domestic legislation. The demand for noxious substance reception facilities are now more identifiable as the guidelines for such near completion and more is learned of the implications of the Annex.

This paper attempts to assess the demand for U.S. reception facilities for ballast water and tank cleaning wastes stemming from both Annex I and Annex II by taking into account international and domestic requirements, the characteristics of the various oil and noxious substance trades and the characteristics of the vessels trading in U.S. ports. While Annex I also calls for the provision of reception facilities for bilge water and machinery sludges, this paper will limit itself to the demands for reception facilities derived from the bulk shipment of oil and noxious substances. While in the strictest sense of the word the term "reception facility" only refers to the transfer and storage system necessary to receive vessel wastes, the treatment systems necessary for final disposal of any wastes which will be received are also considered.

ANNEX I RECEPTION FACILITIES

Annex I Requirements

Annex I limits the quantity of oil a vessel may dischage to the sea and identifies which ports will be required to provide reception facilities. Regulation 9 of the Annex requires that vessels discharging oily wastes be more than 50 miles from shore, that the oil discharge rate not exceed 60 liters per nautical mile and that on existing vessels the total quantity of oil discharged into the sea not exceed 1/15,000 of the total quantity of the particular cargo of which the residue formed a part. On new vessels the quantity should not exceed 1/30,000 of the cargo. Regulations implementing these requirements on domestic tankers were made effective in October 1975 and are contained in 33 CFR 157.

Oily wastes exceeding the quantities permitted to be discharged must be taken to a reception facility. Regulation 12 of Annex I requires that adequate reception facilities be provided at crude oil ports and terminals visited by crude oil tankers on ballast voyages less than 1200 nautical miles or 72 hours, at ports and terminals in which oil other than crude oil is traded in bulk in excess of an average rate of 1000 metric tons per day, at ship repair facilities and at ports loading combination carriers.

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* The views expressed in this paper are those of the author and do not necessarily represent the official view of the U.S. Coast Guard.

Since the use of dirty ballast water is eliminated, segregated ballast requirements reduce the waste water volumes which must be received by reception facilities. Reductions of the minimum deadweight to which segregated ballast requirements apply have resulted in significant changes in the demand for oil reception facilities. MARPOL 73 called for the provision of segregated ballast on new vessels in excess of 70,000 DWT. Under TSPP, segregated ballast is required on new crude carriers in excess of 20,000 DWT and on new product tankers in excess of 30,000 DWT. Segregated ballast or crude oil washing will be required on existing crude carriers in excess of 40,000 DWT by June 1985. Segregated ballast or dedicated clean ballast will be required on existing product tankers in excess of 40,000 DWT by June 1981. During the interim time between the implementing date of the Convention (1981) and the date when segregated ballast or crude oil washing becomes mandatory, existing crude carriers may use a dedicated clean ballast system. Dedicated clean ballast systems will be operated in a manner which will ensure that the oil content of ballast water will be less than the limits set by the Convention. The specifications and procedures required for crude oil washing systems will ensure that ballast water discharged from tanks which have been crude oil washed will satisfy the clean ballast criterion.

In 1978, Congress amended the 1972 Ports and Waterways Safety Act, and in doing so placed the requirements developed at TSPP into law. The new Port and Tanker Safety Act (PTSA) of 1978 also extended the segregrated ballast, crude oil washing and dedicated clean ballast requirements to include lower deadweight tankers. Existing crude carriers in the 20,000 to 40,000 DWT range must be fitted with either segregated ballast or crude oil washing by 1986 or the date on which the vessel becomes 15 years of age, whichever is later. Similarly existing product tankers in the 20,000 to 40,000 DWT range and new product tankers in the 20,000 to 30,000 DWT range must be provided with segregated ballast or dedicated clean ballast tanks in accordance with the time table described for existing crude carriers. When these requirements exceed the international standards, the Act would permit an exemption provided handling of dirty ballast is the preferred method and adequate reception facilities are readily available.

Reception Facilities for the Crude Oil Trade

Crude Carrier Needs. The demand for reception facilities from the crude oil trade will largely stem from the disposal of ballast water from vessels on ballast voyages less than 1200 miles. After cargo discharge, crude carriers not provided with segregated ballast will load ballast water into dirty cargo tanks. While enroute to the loading port, other tanks will be cleaned and loaded with clean ballast. Dirty ballast is then decanted and discharged to the sea until high oil concentrations are noted in the discharge. Similarly tank cleaning slops are decanted. At the loading port, crude oil is loaded on top of the decanted slops. On short voyages less than 1200 miles, sufficient time to clean tanks for clean ballast is not available and vessels on such voyages are expected to arrive in loading ports with dirty ballast. Washings from crude oil tankers would not create a demand for reception facilities unless a vessel is cleaned for a change of service or for repairs. Reception facilities in crude oil loading ports will, therefore, only be required for crude carriers not provided with segregated ballast and trading on routes where the ballast voyage is less than 1200 miles. The crude oil washing process is currently being refined such that water introduced after crude oil washing will meet clean ballast standards.

Assessing the Crude Oil Reception Facility Demand. Ports requiring reception facilities for the crude oil trade can be determined by identifying the crude oil loading ports, identifying the sizes of crude oil carriers visiting these ports, identifying the trade routes and ascertaining which of these trade routes are shorter than 1200 miles. Once these items are identified, the reception facility capacity can be calculated. For capacity assessment purposes, it is assumed that vessels arrive in the loading port with a ballast volume equivalent to 30 percent of the vessel's deadweight. The reception facility capacity required can be estimated by taking 30 percent of the volume of crude oil loaded in a given port and destined for ports less than 1200 miles away and adjusting this figure to take into consideration vessels fitted with segregated ballast, clean ballast tanks, or crude oil washing.

Characteristics of Crude Oil Reception Facilities. To facilitate crude oil carriers calling at a port, reception facilities should be capable of receiving large volumes of waste water over short periods of time. The frequency with which such facilities are used, however, will be low. The optimum design of a facility would be to provide ample storage capacity to retain the dirty ballast from the largest crude carrier expected to call on the port with dirty ballast and then to provide a treatment facility capable of treating the ballast water received before dirty ballast from another crude carrier is received. In order to satisfy these needs, the required reception facilities will most likely take the form of fixed tanks served by pipeline or a large mobile unit such as a barge which will transport wastes to the treatment facility. A number of treatment schemes can be used to satisfactorily treat crude oil laden ballast water. A typical system might consist of an API separator, followed by a dissolved air flotation system and biological treatment.

Oily waste treatment systems are permitted through the Environmental Protection Agency's (EPA) National Pollution Discharge Elimination System (NPDES). In obtaining a permit all possible waste streams and their flow rates are identified. Therefore, to ensure the adequacy of existing reception facilities the Coast Guard must assess the reception facility demand and compare this figure with the ballast water figures shown on the facility's NPDES permit.

U.S. Crude Oil Trade. U.S. laws prohibit the export of crude oil from the U.S. Since the demand for reception facilities from the crude oil trade will only arise in oil loading ports, no demand for reception facilities is expected from the foreign crude oil trade, and the need for crude oil ballast water reception facilities will be based solely on the domestic trade. As noted previously, the demands for reception facilities for tank ships engaged in domestic trade were created by the implementation of 33 CFR 157. To date no reception facility inadequacies resulting from the operation of the domestic tanker fleet have been reported. If domestic crude carriers are complying with existing regulations, reception facilities required for the crude oil trade could be assumed to be adequate.

The Army Corps of Engineers' domestic crude oil shipment records for 1976 were studied to determine the demand for reception facilities. Appendix I lists the twenty-eight crude oil loading ports identified. Valdez, Alaska was included even though no crude oil shipments were made in 1976. Since the Corps' statistics indicate both the shipping and receiving port, volumes of oil shipped over distances less than 1200 miles could be identified. Twenty-one crude oil loading ports (Valdez included) were identified as loading crude oil for voyage lengths less than 1200 miles. The quantities of crude oil shipped from these ports over distances less than 1200 miles varied from 3,944,000 metric tons to 9,700 metric tons. The low volumes of crude oil shipped from some ports indicates that these ports load crude oil only to balance refinery demands and that smaller crude carriers were most likely used.

U.S. Crude Carriers. There are currently 71 domestic tankers which are considered crude carriers. Sixteen are in the 20,000 to 40,000 DWT range, 19 are in the 40,000 to 70,000 DWT range and 36 are in excess of 70,000 DWT.

The TSPP requirements will become effective in the U.S. by 1981 and will apply to all vessels in excess of 40,000 DWT. Representing only 10 percent of the domestic crude carrier tonnage, vessels less than 40,000 DWT will be the only crude carriers requiring ballast reception facilities beyond 1981. Under PTSA, by 1986, the 11 domestic crude carriers less than 40,000 DWT and older than 15 years of age must either be provided with segregated ballast or crude oil washing. These provisions will become mandatory on the last of the domestic crude carriers by 1992. If crude oil washing can be shown to remove crude oil to clean ballast levels, the provision of either crude oil washing or segregated ballast on crude cariers under 40,000 DWT, could eliminate the need for crude oil reception facilities by 1992.

Reception Facilities for the Product Oil Trade

Product Tanker Needs. Two types of wastes are anticipated from product tankers, ballast water and tank washings. The type and quantity of wastes are dependent on the types of cargoes carried and the ballast voyage length. The product trade is broken into two categories, the black product and the white product trades. Black products are traded under lenient product purity standards which allow another black product to be loaded on top of decanted cargo slops and tanks having previously contained another oil without cleaning the tank. In terms of tank cleaning and ballasting, the operation of a black product tanker is similar to that of a crude oil carrier. As such oil loading terminals can expect to receive a dirty ballast volume equivalent to 30 percent of the deadweight from black product tank vessels on short voyages but no wastes from black product tankers on longer voyages. White products are traded under higher product purity standards which necessitate tank cleaning for a change of cargo and which preclude loading on top of decanted slops. White product tankers on short voyages will require reception facilities for a volume of dirty ballast equal to 30 percent of the vessel deadweight as well as possible tank cleaning slops. Vessels on long voyages will require reception facilities for a volume of decanted cargo slops equivalent to 0.1 to 0.2 percent of the deadweight.

Assessing the Product Oil Reception Facility Demand. In the case of the product oil trade, reception facilities are only required when a port or terminal loads on the average in excess of 1000 metric tons of oil per day. The first step in assessing the demand is to identify which U.S. ports or terminals load oil in excess of this rate. The Convention requires that reception facilities at these ports be adequate but does not specify a minimum capacity. Therefore, the black oil and white oil trade for each port must be studied to determine the length of the voyages, the volumes of cargo traded and the sizes of vessels involved. The demand can be assessed by applying the principles identified above and the segregated ballast requirements for product tankers.

U.S. Product Oil Tankers. There are currently 157 domestic product tankers. Twenty-five are less than 20,000 DWT; 119 are in the 20,000 to 40,000 DWT range; 12 are in the 40,000 to 70,000 DWT range; and 1 is in excess of 70,000 DWT. The TSPP segregated ballast requirements will apply to all vessels in excess of 40,000 DWT. The 144 domestic product tankers less than 40,000 DWT represent 85 percent of the U.S. product tanker tonnage and will require reception facilities beyond 1981. Under PTSA, by 1986, the provision of segregated ballast will be mandatory on all but 28 of the vessels in the 20,000 to 40,000 DWT range and the 25 vessels less than 20,000 DWT. By 1992 segregated ballast will be mandatory on all but the 25 vessels under 20,000 DWT. While the demand for product trade reception facilities will be sharply reduced by the provision of segregated ballast, product trade reception facilities will continue to be required for receipt of tank cleaning slops from the white product trade and ballast water from vessels under 20,000 DWT.

Characteristics of Product Oil Reception Facilities. Ballast reception facilities for product tankers on short voyages will be similar to those described for crude carriers on short voyages. White product tankers on long voyages will require reception facilities for tank cleaning slops which will generally have been decanted. Therefore, tank trucks, rail cars or tank barges could be used to receive decanted slops from white product tankers.

Product oil, ballast treatment techniques are similar to those described for the treatment of crude oil ballast water. Concentrated tank cleaning slops can frequently be sold or introducted into a refinery stream.

U.S. Product Oil Trade. The U.S. product oil trade consists of both domestic and foreign shipments. The volume of oil shipped domestically is significantly larger than the volume of oil exported. For example, in 1975 the volume of product oil shipped domestically was 145 million metric tons while the export volume was 2.5 million metric tons. The oil exported was shipped over distances longer than 1200 miles; domestic oil was in many cases shipped over shorter distances. It is evident from the trade volumes and the natures of the trades that while some demand for reception facilities will result from the foreign oil trade the majority of the demand will stem from the domestic trade.

Army Corps of Engineers' shipping and receiving data on domestic product oil shipments identifies eight categories of petroleum products, three black oil categories and five white oil categories. The 1976 shipment data was studied to:

1. identify loading ports where in excess of 1000 metric tons of product oils are loaded per day;

2. determine the quantity of black oil loaded in these ports and destined for ports less than 1200 miles distance;

3. determine the quantity of white oil loaded in these ports and destined for ports less than 1200 miles distance;

4. determine the quantity of white oil loaded in these ports and destined for ports greater than 1200 miles distance.

The survey identified seventy-two ports which loaded product oil onto tank ships for domestic shipment. Appendix I lists the 34 ports which loaded in excess of 1000 tons of product oil per day and must, therefore, be provided with adequate reception facilities. Fourteen of these ports were previously identified as loading crude oil for shipments less than 1200 miles. Most of the large ports identified shipped some portion of black and white oils over distances less than 1200 miles, indicating a need for ballast reception facilities in these ports. The white oils shipped also indicate a need for reception facilities to receive concentrated slops.

The 1975 Department of Commerce statistics on the export of oil from U.S. ports were also reviewed for the foreign oil trade's impact on the demand for reception facilities. The export trade figures identified twenty-seven ports as oil exporters. Fifteen of the ports were already identified as loading in excess of 1000 metric tons per day for domestic shipment. The volumes of oil exported by these ports was generally less than ten percent of the total volume of oil shipped in foreign and domestic trades. Of the remaining twelve ports exporting oils, none exported a volume which would increase the total volume of oil shipped to a level greater than 1000 tons per day. Therefore, no additional ports will require reception facilities on account of oil exports.

Reception Facility Surveys

A number of surveys have been conducted in order to identify reception facilities that are currently available. The Military Sealift Command (MSC) has compiled a listing of ballast facilities available at refineries and terminals visited by MSC vessels. The listing identifies approximately 60 ballast receiving facilities located at U.S. oil refineries and terminals. The Coast Guard has also conducted several surveys, the most recent and successful survey was conducted with the assistance of the American Petroleum Institute and the Independent Liquid Terminals Association. The survey identifies additional facilities not previously identified by the MSC. In matching the reception facilities with the ports that require reception facilities, it was found that reception facilities were available in all but a few of the 41 ports. It was found that refineries at which oil is loaded onto vessels are fitted with reception facilities while independent loading terminals generally are not provided with reception facilities. While an exact comparison between a port's reception facility needs and its receiving capability is not possible at this time, the comparison between the locations of the facilities identified and ports requiring facilities gives an optimistic outlook on the current adequacy of reception facilities.

The Convention also requires the provision of reception facilities at shipyards. A 1975 Marad survey identifies reception facilities available at U.S. shipyards. The survey lists 32 shipyards having some means of disposing of oily wastes received from tankships. The means of disposal ranged from on site treatment systems to removal by a private contractor. Shipyards in the Gulf were noticeably missing from the survey list.

Summary of Results-Annex I Reception Facilities

Existing regulations limiting the amount of oil which may be discharged at sea by domestic tankers to the levels specified in Annex I of Marpol' 73 have necessitated the provision of reception facilities since 1975. Review of international and domestic requirements and oil shipping records show that full implementation of MARPOL '73 will result in only minimal additional needs for reception facilities.

The need for crude oil reception facilities was found to stem solely from domestic shipments over voyage distances less than 1200 nautical miles. In 1976, 10 million tons of crude oil were shipped over distances less than 1200 miles. Twenty-one ports were identified as requiring adequate crude oil reception facilities. Requirements for segregated ballast have sharply reduced the demand. Should crude oil washing be proven to be effective in removing oil residues to clean ballast levels the demand will be reduced further. By 1981, 16 tankers, representing 10 percent of the domestic crude carrier tonnage, will be the only crude carriers not required to be fitted with segregated ballast or crude oil washing. The application of domestic legislation requiring the provision of either crude oil washing or segregated ballast on these vessels could eliminate all needs for crude oil reception facilities by 1992.

While the demand for product oil reception facilities largely stems from domestic shipments, foreign oil shipments will also contribute to the total demand. Only ports loading in excess of 1000 metric tons must be provided with adequate reception facilities. Thirty-four U.S. ports meet this criterion. Product oil reception facilities will be required for the receipt of both ballast water and tank cleaning slops. Forty million tons of product oil were shipped over routes requiring ballast water reception. The need for ballast water reception facilities has been sharply reduced through domestic legislation and will be all but eliminated by 1992. The need for product oil reception facilities for tank cleaning slops will continue, however, these wastes are more easily manageable in that they are lower in volume and commonly have a commercial value.

While the ports identified must provide adequate reception facilities, the required capacity can vary widely according to the sizes of vessels visiting the port and the extent to which they are provided with segregated ballast or crude oil washing. Therefore, no prediction of the required sizes of reception facilities for specific ports were made.

The bulk of the Annex I wastes will be received by petroleum refineries capable of accomodating ballast and tank cleaning wastes by means of existing oil treatment facilities. Other demands for reception facilities will arise from entry into shipyards, loading for grain and loading oil at small terminals. Reception facilities to meet these demands are currently not always available and their provision may be one of the more difficult problems in providing adequate facilities.

While this study more clearly identifies the needs for reception facilities it also identifies additional problems which must be resolved. Examples of the problems raised include:

> 1. Port boundaries must clearly be identified. How port boundaries are defined will in some cases determine the need for reception facilities. For example, the Army Corps of Engineers' data individually identifies many small ports on the Mississippi south of New Orleans, while the Commerce Department combines these ports into one customs port. Individually these small ports do not load in excess of 1000 metric tons per day, collectively they do. Similar situations exist in the San Francisco and Los Angeles areas.
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> 2. Oil shipment patterns are of a changeable nature. Some ports may not ship crude oil over distances less than 1200 miles or load product oil in excess of 1000 metric ton per day consistently. In applying the MARPOL '73 criteria to these ports, the need for reception facilities can vary from year to year.
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> 3. While the required segregated ballast capacities will provide for adequate ballasting during normal weather conditions, severe weather conditions have dictated that vessels ballast to as much as 75 percent of their capacity. The need to provide facilities for vessels under these conditions remains to be determined.

Clearly, much work remains before the adequacy of reception facilities can be ensured.

ANNEX II RECEPTION FACILITIES

Annex II Requirements

Annex II limits the quantities of noxious substances vessels may discharge to the sea and identifies which ports will require reception facilities for noxious liquid substances. Substances regulated by Annex II are assigned to one of four categories (A, B, C or D) according to the aquatic toxicity of the product. The noxious substances and the categories to which they are assigned are listed in Appendix II. The most stringent restrictions apply to Category A products. When a tank having contained a Category A product is washed, the waste water resulting from cleaning must be discharged to a reception facility until the concentration of the product in the wash water goes below a specified value (generally 0.1%). The Annex currently identifies thirteen Category A products. The residues of Category B products may be discharged to the sea provided the quantity of residue remaining is less than the greater of 1 cubic meter or 1/3000 of the tank capacity. If the tank is to be washed and the quantity of residue exceeds this level, the resultant washings must be discharged to a reception facility. Similarly, the residues of Category C products may be discharged to the sea provided the quantity of residue remaining is less than the greater of 3 cubic meters or 1/1000 of the tank capacity. Again, quantities of residue exceeding this level must be discharged to a reception facility. The Annex places no limits on the quantities of Category D residues which may be discharged to the sea.

Regulation 7 requires that reception facilities be provided in chemical ports where vessels carrying noxious substances are loaded and unloaded and in ship repair ports servicing such vessels. It has been agreed at IMCO that ports should only be required to treat wastes derived from noxious substances traded in the port.

Demand for Annex II Reception Facilities

The demand for Annex II reception facilities will largely stem from the washing of cargo tanks. In the U.S., wastes are expected from:

1. washing of Category A products from tanks,

2. washing of tanks when the residue limits are exceeded, and

3. washing of tanks for backloading.

When a tank containing a Category A residue is washed, the washings must be discharged to a reception facility until the concentration of Category A substance in the wash water is reduced to the specified value. Washing studies have indicated that for typical products, this concentration is reached after approximately 5 metric tons of water have been applied to the tank surfaces; but for Category A substances which are difficult to clean, as much as 100 metric tons may be required. In the case of Category B and C products, wastes must come ashore when the quantity of residue on board exceeds 1 and 3 cubic meters respectively. Tests on a number of vessels have indicated that for products which do not require heating the quantity of residue ranges from 0.1 to 3 cubic meters when pipelines are cleared. For the viscosity range typical of noxious substances, the quantity of residue has been shown to be relatively independent of viscosity. In some cases the residue quantity can be further reduced by installing stripping systems. It is anticipated that the economics of waste disposal will encourage such modifications. It is, therefore, expected that upon the implementation of the Annex, residue quantities on chemical tankers will only be exceeded when high melting point products are carried. This can be minimized through the use of heating systems and insulated tanks. When the residue in a tank does exceed the 1 or 3 cubic meter limit, the requirements of the Annex can be satisfied by applying wash water volumes noted for Category A products.

In the chemical trade, vessels frequently backload (i.e., unload and reload the same cargo tank in a single port). This process requires that the tank be washed in port. When a slop tank is available, the washings can be retained for disposal at sea. On some occasions, however, a slop tank is not available and the vessel must either discharge washings to a reception facility or proceed to sea to dispose of washings. Though not mandated by the Annex , it will in some cases be in the best interest of the port and the chemical vessels using the port to provide reception facilities for disposal of backloading wastes. When a tank is washed for backloading, a wash water volume of 60 metric tons may be typically expected.

U.S. Bulk Chemical Trade and the Resulting Demand for Receptions Facilities

Foreign Versus Domestic Trades. U.S. ports are engaged in both foreign and domestic chemical trades. Trade data indicates that in the U.S., the volume of chemicals traded internationally in bulk is approximately four times larger than the U.S. domestic tankship bulk chemical trade. This ratio would indicate that the majority of the demand for reception facilities will stem from the foreign chemical trade.

Studying the characteristics of the foreign and domestic chemical trades indicates that the difference between the waste loads which will be received from the foreign and domestic trades will be even larger than would be expected if a proportional relationship were assumed. Domestic chemical tankers trade on relatively fixed routes. As a result, all tanks are not cleaned on each voyage. Substances which would require the use of reception facilities (e.g. Category A substances or high melting point Category B or C products) are commonly carried in dedicated tanks. For example, motor fuel antiknock compounds, naphthalene and phenol are all carried in this fashion. As a result, only minimal demands for reception facilities are created by these trades. In the domestic chemical trade, chemical tankers depart the loading port fully loaded and return empty or with only limited quantities of cargo. Accordingly, washing for backloading on vessels engaged in domestic trade is not expected to create an appreciable demand for reception facilities. On vessels engaged in foreign trade, tanks are cleaned each time a cargo is unloaded. As a result of the higher cleaning frequency, the quantity of wastes received per unit volume of chemicals shipped will be higher in the foreign trade.

Noxious Substances Trade. Comprehensive trade statistics are available for the foreign chemical trade; domestic trade data is not sufficiently detailed to produce meaningful results. U.S. Customs' records provide a detailed compilation of the quantities of chemicals imported and exported annually by U.S. Customs ports. Identified are 33 individual or groups of noxious substances imported into the U.S. and 48 individual or groups of noxious substances exported from the U.S. While other noxious substances may be traded, information on their trade volumes is not retrievable; failing to include these chemicals in the survey will to result in apppreciable error.

The survey identified 28 U.S. ports which traded noxious substances. Of these ports, 9 ports traded in excess of 100,000 metric tons, 7 ports traded between 10,000 and 100,000 metric tons and 12 ports traded less than 10,000 metric tons annually. Appendix III lists the U.S. chemical ports and summarizes the import and export data by showing the total volumes of noxious substances imported and exported by each port.

Assessment of the Demand for Noxious Substances Reception Facilities. In order to determine whether a port would have a significant demand for reception facilities as a result of backloading, the import and export figures were compared. If a port imported more than it exported, it was assumed that chemical tankers trading at this port would generally depart the port with empty cargo tanks which could be used as slop tanks when washing for backloading. If, on the other hand, exports exceeded imports, reception facilities might be required. The import to export ratio was determined for each chemical port. By determining the import to export ratio for each chemical port and studying the nature of a particular port's trade, the need to provide reception facilities for backloading was determined. Of the 28 ports, the survey indicates that 6 ports may require reception facilities for backloading.

Since the need for reception facilities will largely stem from the import of noxious substances, the products imported by each port were studied to deter-mine whether substances which are most likely to require reception facilities were imported. The products considered were Category A substances and Category B and C products with high melting points (greater than 0°C). To determine the volume of wash water which might be expected, the number of tanks which would require washing must be known. It was assumed that the average tank contained 300 metric tons of cargo. From the import data on cargoes most likely to require reception facilities, an estimate was made of the number of times tanks would require washing in each port. Appendix III summarizes the number of times cargo tanks would require washing and discharge to a reception facility in a given port annually. It should be noted that the ambient temperature used to define high melting point cargoes will be extremely conservative during most times of the year. Furthermore, the provision of cargo heating systems in tanks will assist in reducing the overall need for reception facilities for high melting point products.

Based on the need for reception facilities for backloading and the frequency with which special products are imported, an overall assessment of a port's need for reception facilities was made. Appendix III summarizes this demand by noting a port's needs as low, moderate or high. However, even in the ports in which a high demand for reception facilities is indicated, the annual waste load expected is relatively small. The conservative assumption that 100 metric tons of waste will come ashore per washing indicates that a port identified as having a high reception facility demand would require a reception facility capacity of 20,000 metric tons annually. The waste load figures indicate that rather than establishing treatment facilities specifically designed to receive Annex II wastes, existing treatment facilities designed to treat similar industrial wastes should be used and that reception facilities should be mobile. Tank trucks would most likely serve this need.

Annex II Reception Facilities

When Annex II is implemented, it is envisioned that several types of waste treatment systems will be required. The inorganic acids and bases such as sulfuric acid, phosphoric acid, caustic soda and caustic potash can be treated by simple neutralization systems. The insoluble chemical wastes such as benzene, toluene, cyclohexane and xylene can be treated by oily waste water treatment systems. The soluble and slightly soluble substances such as the chlorinated hydrocarbons, phenol and organic amines will require gravity separation, biological treatment and advanced physical-chemical treatment. As alternatives to these treatment processes, Annex II wastes could be disposed of in permitted landfills or by deep well injection.

The EPA conducted a survey and published a listing of U.S. hazardous waste management facilities. Currently, it is estimated that in the U.S. some 30 million tons of hazardous wastes are disposed of annually. The volume of waste produced industrially exceeds by orders of magnitude the volume of wastes anticipated as a result of the implementation of Annex II. While several advanced waste treatment facilities are becoming available, the majority of the facilities rely on a land disposal techniques such as landfill or deep well injection as the ultimate means of disposal. Under the authority granted by the Resource Conservation and Recovery Act (RCRA), the EPA will develop standards for all hazardous wastes facilities. Land disposal techniques will continue to be permissible but it is anticipated that many of the existing landfill sites will be considered substandard and will either be brought up to standards or closed. Landfill disposal costs currently ranging from $8 to $12/ton are expected to rise to $50/ton. The availablity of landfills is also expected to decrease and it is anticipated that physical chemical-biological waste treatment systems will be established for the disposal of the hazardous wastes most amenable to such treatment.

The proximity of hazardous waste management facilities to chemical ports was evaluated. While disposal facilities are not available in the immediate vicinity of some ports with low reception facility demands, the distances over which tank trucks must transport Annex II wastes for disposal were generally found to be reasonable.

Summary-Annex II Reception Facilities

The need for noxious substance reception facilities will develop as a result of the implementation of Annex II of MARPOL '73. The demand for such facilities has been assesed through a survey of the U.S. noxious substance trade. Twenty-eight ports were identified as having shipped noxious substances. A more detailed analysis of each port's trade will be necessary to determine if reception facilities will be required.

The combination of several factors indicates that the actual demand for reception facilities will be low. The trade data indicates that the most harmful noxious substances are carried infrequently. The Annex also permits limited quantities of the less harmful noxious substances to be discharged at sea and residue on board tests indicate that most vessels can discharge to levels below the residue limits set by the Annex. Washing procedures designed to remove the majority of the residue with mininal quantities of wash water have been developed.

The volumes anticipated show that the establishment of treatment facilities purely for the disposal of vessel generated noxious wastes is not warranted. Industrial wastes from other sources are orders of magnitude larger than the Annex II waste load. Mobile reception facilities such as tank trucks appear to be the most appropriate means of receiving wastes from vessels. While disposal facilities are available for these wastes, they sometimes appear to be no more environmentally satisfactory than disposal at sea. Domestic legislation requires that the acceptability of disposal facilities be evaluated. This action is expected to encourage the development of improved land based hazardous waste treatment facilities which will be capable of accommodating Annex II wastes.

REFERENCES

1. International Conference on Marine Pollution, 1973, International Convention for the Prevention of Pollution from Ships, 1973, 1974 Edition, London.

2. Intergovernmental Maritime Consultative Organization, Guidelines on the Provision of Adequate Reception Facilities in Ports, Part I (Oily Wastes), London, December 1976.

3. Intergovernmental Maritime Consultative Organization, Draft Guidelines on the Provision of Adequate Reception Facilities in Ports, Part II (Noxious Substances), The Hague, September 1978.

4. U.S. Department of Commerce, Bureau of the Census, EA 622, U.S. Exports, December 1975, Washington, D.C., 1976.

5. U.S. Department of Commerce, Bureau of the Census, IA 245 U.S. Imports for Consumption and General Supports, December 1975, Washington, D.C., 1976.

6. U.S. Department of the Army Corps of Engineers, Waterborne Commerce of the United States, Calendar Year 1976, Vicksburg, Mississippi, 1977.

7. Department of Transportation, U.S. Coast Guard, Report of Study of Tanker Safety and Pollution Prevention Requirements for U.S. Tankers in Domestic Trade. Washington, D.C., 1978.

8. Ninety-fifth Congress of the United States, Port and Tanker Safety Act of 1978, Washington, D.C., 1978.

APPENDIX I

U.S. CRUDE OIL LOADING PORTS AND PRODUCT LOADING PORTS LOADING IN EXCESS OF 1000 METRIC TONS PER DAY (QUANTITIES SHIPPED IN THOUSANDS OF METRIC TONS)

Port	Crude Oil (C) and Product Oil (P) Loading Ports	Crude Oil Loaded	Crude Oil Shipped Less Than 1200 Miles	Product Oil Loaded	Black Oil Shipped Less Than 1200 Miles	White Oil Shipped Less Than 1200 Miles	White Oil Shipped More Than 1200 Miles
Portland, Maine	P	-	-	633	303	331	-
Boston, Mass.	P	-	-	621	420	163	-
New York, N.Y.	P	-	-	6,370	2,386	3,426	149
Philadelphia, Pa.	P	-	-	2,420	938	1,437	65
Wilmington, Del.	C,P	123	60	3,576	1,112	2,502	-
Paulsboro, N.J.	P	-	-	914	636	171	130
Marcus Hook, Pa.	P	-	-	550	109	364	81
Newport News, Va.	P	-	-	1,093	463	607	-
Mobile, Ala.	C,P	321	321	512	-	512	-
Pascagoula, Miss.	P	-	-	1,261	639	537	56
New Orleans, La.	C,P	333	305	6,233	356	942	1,169
Baton Rouge, La.	P	12	-	3,208	380	63	1,762
Good Hope, La.	P	-	-	1,006	126	-	39
Port Arthur, Tex.	P	-	-	7,898	725	1,619	2,412
Sabine, Tex.	C	116	62	20	-	-	-
Beaumont, Tex.	C,P	689	121	5,876	386	323	2,177
Lake Charles, La.	P	340	-	1,176	111	116	610
Freeport, Tex.	P	-	-	606	16	108	59
Corpus Christi, Tex.	C,P	1,705	575	8,863	371	497	1,351
Texas City, Tex.	P	15	-	3,636	398	738	1,080
Los Angeles, Calif.	C,P	629	629	3,769	2,446	769	260
Port San Luis, Calif.	C	919	919	12	12	-	-
Long Beach, Calif.	C,P	233	233	1,666	1,310	290	16
El Segundo, Calif.	C,P	658	658	3,098	1,677	370	144
Ventura, Calif.	C	1,567	1,567	87	74	13	-
Morro, Calif.	C,P	3,964	3,944	485	485	-	-
San Francisco, Calif.	C	60	60	1	-	-	1
Richmond, Calif.	C,P	283	189	3,230	1,687	389	462
San Pablo Bay, Calif.	C,P	56	56	1,716	995	611	96
Carquinez Strait, Calif.	C,P	23	23	2,667	1,039	866	265
Suisun Bay, Calif.	C	10	10	135	126	9	-
Bellingham, Wash.	P	11	-	1,386	202	321	557
Anacortes, Wash.	P	-	-	819	61	78	538
Valdez, Ala.	C						
Alaskan Peninsula South Side	C,P	6,766	396	3,176	205	382	153
Honolulu, Hawaii	P	-	-	1,166	61	31	270
Humacao, P.R.	P	2	-	869	-	-	321
Guayanilla, P.R.	P	36	-	1,406	-	-	675
Christiansted, V.I.	P	1	-	21,131	26	36	6,376
Port Everglades, Fla.	C	636	362	17	9	8	-
Houston, Tex.	C,P	777	27	13,527	600	184	7,673

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APPENDIX II

LIST OF NOXIOUS LIQUID SUBSTANCES CARRIED IN BULK

Substance	Pollution Category
Acetaldehyde	C
Acetic acid	C
Acetic anhydride	C
Acetone	D
Acetone cyanohydrin	A
Acetyl chloride	C
Acrolein	A
Acrylic acid*	C
Acrylonitrile	B
Adiponitrile	D
Alkylbenzene sulfonate	
(straight chain)	C
(branched chain)	B
Allyl alcohol	B
Allyl chloride	C
Alum (15% solution)	D
Aminoethylethanolamine (Hydroxyethyl-ethylene-diamine)*	D
Ammonia (28% aqueous)	B
iso-Amyl acetate	C
n-Amyl acetate	C
n-Amyl alcohol	D
Aniline	C
Benzene	C
Benzyl alcohol	D
Benzyl chloride	B
n-Butyl acetate	D
sec-Butyl acetate	D
n-Butyl acrylate	D
Butyl butyrate*	B
Butylene glycol(s)	D
Butyl methacrylate	D
n-Butyraldehyde	B
Butyric acid	B
Calcium hydroxide (solution)	D
Camphor oil	B
Carbon disulphide	A
Carbon tetrachloride	B
Caustic potash (Potassium hydroxide)	C
Chloroacetic acid	C
Chloroform	B
Chlorohydrins (crude)*	D
Chloroprene*	C
Chlorosulphonic acid	C
para-Chlorotoluene	B
Citric acid (10%-25%)	D
Creosote	A
Cresols	A
Cresylic acid	A
Crotonaldehyde	B
Cumene	C
Cyclohexane	C
Cyclohexanol	D
Cyclohexanone	D
Cyclohexylamine*	D
para-Cymene (Isopropyltoluene)*	D
Decahydronaphthalene	D
Decene*	D
Diacetone alcohol*	D
Dibenzyl ether*	C
Dichlorobenzenes	A
Dichloroethyl ether	B
Dichloropropene - Dichloropropane mixture (D.D. Soil fumigant)	B
Diethylamine	C
Diethylbenzene (mixed isomers)	C
Diethyl ether	D
Diethylenetriamine*	C
Diethylene glycol monoethyl ether	C
Diethylketone (3-Pentanone)	D
Diisobutylene*	D
Diisobutyl ketone	D
Diisopropanolamine	C
Diisopropylamine	C
Diisopropyl ether*	D
Dimethylamine (40% aqueous)	C
Dimethylethanolamine (2-Dimethylamino-ethanol)*	C
Dimethylformamide	D
1,4-Dioxane*	C
Diphenyl/Diphenyloxide mixtures*	D
Dodecylbenzene	C
Epichlorohydrin	B
2-Ethoxyethyl acetate*	D
Ethyl acetate	D
Ethyl acrylate	D
Ethyl amyl ketone*	C
Ethylbenzene	C
Ethyl cyclohexane	D
Ethylene chlorohydrin (2-Chloro-ethanol)	D
Ethylene cyanohydrin*	D
Ethylenediamine	C
Ethylene dibromide	B
Ethylene dichloride	B
Ethylene glycol monoethyl ether (Methyl cellosolve)	D
2-Ethylhexyl acrylate*	D
2-Ethylhexyl alcohol	C
Ethyl lactate*	D
2-Ethyl 3-propyl-acrolein*	B
Formaldehyde (37-50% solution)	C
Formic acid	D
Furfuryl alcohol	C
Heptanoic acid*	D
Hexamethylenediamine*	C
Hydrochloric acid	D
Hydrofluoric acid (40% aqueous)	B
Hydrogen peroxide (greater than 60%)	C
Isobutyl acrylate	D
Isobutyl alcohol	D
Isobutyl methacrylate	D
Isobutyraldehyde	C
Isooctane*	D
Isopentane	D
Isophorone	D
Isopropylamine	C
Isopropyl cyclohexane	D
Isoprene	D
Lactic acid	D
Mesityl oxide*	C
Methyl acetate	D
Methyl acrylate	C
Methylamyl alcohol	D
Methylene chloride	B
2-Methyl-5-Ethyl-pyridine*	B
Methyl methacrylate	D
2-Methylpentene*	D
alpha-Methylstyrene*	D
Monochlorobenzene	B
Monoethanolamine	D
Monoisopropanolamine	C
Monomethyl ethanolamine	C
Mononitrobenzene	C
Monoisopropylamine	C
Morpholine*	C
Naphthalene (molten)	A
Naphthenic acids*	A
Nitric acid (90%)	C
2-Nitropropane	D
ortho-Nitrotoluene	C
Nonyl alcohol*	C
Nonylphenol	C
n-Octanol	C
Oleum	C
Oxalic acid (10-25%)	D
Pentachloroethane	B
n-Pentane	C
Perchloroethylene (Tetrachloroethylene	B
Phenol	B
Phosphoric acid	D
Phosphorus (elemental)	A
Phthalic anhydride (molten)	C
beta-Propiolactone*	B
Propionaldehyde	D
Propionic acid	D
Propionic anhydride	D
n-Propyl acetate*	C
n-Propyl alcohol	D
n-Propylamine	C
Pyridine	B
Silicon tetrachloride	D
Sodium bichromate (solution)	C
Sodium hydroxide	C
Sodium pentachlorophenate (solution)	A
Styrene monomer	C
Sulphuric acid	C
Tallow	D
Tetraethyl lead	A
Tetrahydrofuran	D
Tetrahydronaphthalene	C
Tetramethylbenzene	D
Tetramethyl lead	A
Titanium tetrachloride	D
Toluene	C
Toluene diisocyanate*	B
Trichloroethane	C
Trichloroethylene	B
Triethanolamine	D
Triethylamine	C
Trimethylbenzene*	C
Tritolyl phosphate (Tricresyl phosphate)*	B
Turpentine (wood)	B
Vinyl acetate	C
Vinylidene chloride*	B
Xylenes (mixed isomers)	C

* Asterisk indicates that the substance has been provisionally included in the list and that further data are necessary in order to complete the evaluation of its environmental hazards, particularly in relation to living resources.

APPENDIX III

U. S. CHEMICAL PORTS

Port	Chemical Trade in Metric Tons		Import ÷ Export Ratio	Demand for Bulk Loading	Annex II Categories of Chemicals Traded	Tanks for Special Cargoes*		Demand for Reception Facilities			Remarks
	Imports	Exports				Category A	High Melting Point	Low	Moderate	High	
LARGE PORTS											
Galveston, Texas	120,408	1,346,752	0.089	YES	A,B,C,D	—	16			x	
New Orleans, La.	125,934	1,070,889	0.118	YES	A,B,C,D	44	1			x	
Houston, Texas	175,796	816,136	0.215	YES	A,B,C,D	15	13			x	
San Juan, P.R.	26,193	395,934	0.06c	NO	C Only	—	—	x			Sulfuric acid only import product
Tampa, Fla.	20,518	408,310	0.050	NO	A,C,D	9	1		x		
Port Arthur, Texas	19,422	382,700	0.051	YES	B,C	—	—		x		
New York, N.Y.	126,303	47,908	2.6	NO	A,B,C,D	41	123			x	
Baltimore, Md.	130,113	8,103	16.1	NO	A,B,C,D	—	260		x		97% of import trade is sulfuric acid and caustic soda
Philadelphia, Pa.	48,571	47,413	1.02	NO	A,B,C,D	—	86		x		
MEDIUM PORTS											
Wilmington, N.C.	23,242	51,686	0.45	NO	C,D	—	11	x			
Bridgeport, Conn.	62,912	—	—	NO	B,C	—	124	x			Caustic soda and sulfuric acid only high melting point products
San Francisco, Cal.	1,642	54,430	0.03	NO	A,B,C,D	—	—	x			
Los Angeles, Cal.	15,018	34,977	0.43	NO	A,B,C,D	—	14	x			
Detroit, Mich.	32,242	10,255	3.14	NO	B,C,D	—	48	x			Benzene only high melting point product
Portland, Ore.	40,499	—	—	NO	A,C	5	6		x		
Seattle, Wash.	15,843	7,693	2.06	NO	A,C	13	16		x		
SMALL PORTS											
Anchorage, Alaska	10,467	—	—	NO	C	—	21	x			Caustic soda only product traded
Savannah, Ga.	10,211	—	—	NO	A,C	19	1		x		
Chicago, Ill.	6,591	2,140	3.08	NO	C	—	7	x			
Providence, R.I.	6,114	—	—	NO	C	—	12	x			Caustic soda only product traded
Norfolk, Va.	7,300	1,758	4.15	NO	A,B,C,D	7	3		x		
Charleston, S.C.	—	5,128	—	NO	D	—	—	x			
Miami, Fla.	—	3,377	—	NO	B,C,D	—	—	x			
Mobile, Ala.	—	3,056	—	NO	C	—	—	x			
Boston, Mass.	—	753	—	NO	C	—	—	x			
Milwaukee, Wis.	246	218	1.12	NO	B,C	—	1	x			
Cleveland, Ohio	—	184	—	NO	C,D	—	—	x			
Duluth, Minn.	—	99	—	NO	C	—	—	x			

* Average shipment size of 500 metric tons assumed

Mr. **Biaggi**. Do you have any information about the economic and technical difficulties that the foreign ports may be having with establishment of reception facilities?

Admiral **Bell**. Not directly, sir. IMCO has requested, and obtained several times, information as to the availability of reception facilities, and has requested member countries to inform IMCO when they have instances when they are inadequate.

IMCO has published one report of an oily water reception facility established, I believe, in Turkey. I think we have a difference, though, between the United States and our ability to provide reception facilities and many foreign countries, because they have no comparable legislation to ours vis-a-vis the FWPCA or the Clean Water Act, which have generated within this country an industry that is dedicated to the handling of and disposing of these oily wastes and noxious liquids.

In other countries, their attitudes toward these types of pollution are a lot more lax. Where we have companies that are dedicated to this work and can be called in to assist a ship, you do not find their counterparts in many countries.

So I think there are problems with disposing these residues, without undue delay, in foreign countries. But it is very difficult to establish, since IMCO does not talk about the adequacy of a reception facility, just the availability of it.

Mr. **Biaggi**. That is a hell of a way to do business.

Do you have any interagency problems with relation to the establishment of these facilities?

Admiral **Bell**. No, sir, but I would like to ask Captain Corbett, who has been the main interface on that point, to address that question.

Captain **Corbett**. Mr. Chairman, for 2 years or more, we have been working in concert with EPA, MarAd, NOAA, and the Corps of Engineers concerning these problems. We have identified what we believe might be a way of providing loans through NOAA's coastal energy impact program.

As far as the relationship with EPA is concerned, that principally is related to the ultimate disposal of the chemical wastes, both oil and chemicals. We want to be sure that just because the chemicals or oil leave the ship, they are not just dumped in one of the unlicensed disposal sites which you alluded to earlier. We intend to insure that these chemicals reach a disposal site which is approved by a State or by the EPA.

Mr. **Biaggi**. Section 5 of the bill has a requirement for accepting foreign-issued certificates required by the convention. The Port and Tanker Safety Act of 1978 has a requirement for accepting in whole or in part a certificate issued pursuant to a treaty as a basis for issuance of a U.S. certificate of compliance to foreign tank vessels. It appears that section 5 of this bill will have to be changed and probably deleted in its entirety. How do you respond to that?

Admiral **Bell**. We do not see it that way, sir. I see no conflict between the authority that would be given in the bill for the issuance of a MARPOL certificate and the requirement under the Port and Tanker Safety Act to issue a certificate of fitness. I think they are supplementary and not contradictory.

In 5(d) here, it specifically says that the inspection necessary under the MARPOL certificate does not limit the authority of any official employee of the United States under any treaty, law or regulation to inspect the ship or its equipment. I would assume that means, in a nonlegal way of interpreting it, that we can still go aboard and perform our required inspections under the Port and Tanker Safety Act for the issuance of a certificate of fitness or compliance.

Mr. **Biaggi**. The difference is that in the 1978 Tanker Act it is not prima facie evidence that the foreign-issued certificate shows that the vessel is in compliance.

Admiral **Bell**. Sir, I am not sure I heard the question.

Mr. **Biaggi**. It is not as clear, in my judgment, as it might be. Under (d), it says, "An inspection conducted under subsection (c)(2) of this section is limited to verifying whether or not a valid certificate is on board." It is that limitation that we are talking to.

Admiral **Bell**. Again, sir, if we have to answer on a legal basis, it will have to be for the record. The way I would read this is that this says that we are to go aboard and insure that they have on board a certificate issued by the proper issuing authority of the flag state, and that we can inspect the vessel. The limitation is that we can inspect it only to the extent that we verify that as a valid certificate, and that is in respect to the MARPOL Protocol itself.

However, as to the exception down in (d), where it does not limit our authority for further inspection of the vessel, I interpret that as saying that for those vessels, when they are in our ports, we could do the required inspections under the Port and Tanker Safety Act for a total vessel, which includes not only pollution prevention, but the other safety aspects of the vessel, which inspection goes far beyond that required by the MARPOL Protocol to assure that a certificate is valid. Mr. Biaggi. I recall that when we were deliberating over the Port and Tanker Safety Act of 1978, we did not have much faith in some of the foreign countries that issued certificates; we did not think they had the same standards, and we kind of stressed that point. We may have legislated stricter standards than most of them would have agreed to. The absence of faith in those certificates is the basis for the cause of concern in the limitation.

Be that as it may, it is a point at issue and we will be, I am sure, discussing it with you further.

Admiral **Bell**. Yes, sir.

Mr. **Biaggi**. Mr. Bruce?

Mr. **Bruce**. Admiral, apropos what the chairman asked earlier, in your survey have you attempted to determine compatibility with the Resource Conservation and Recovery Act and the regulations that EPA has issued under that act, which are still in the process of development?

There has been great concern about compatibility between this bill and the provisions of it and that act.

Admiral **Bell**. I will ask Mr. Wybenga to answer. I think the only problem that I was aware of with respect to compatibility was the question of calling the vessel, per se, the source or the originator of the waste. But I am not aware of any other incompatibility. Fritz?

Mr. **Wybenga.** No, I do not know of any other incompatibility. We look to the RCRA Act to identify those facilities that are adequate from a treatment standpoint to handle the annex II waste, so that we would look to EPA to certify those facilities and make the determination that the manner in which these facilities discharge wastes is environmentally acceptable. So we look to RCRA to make the determination on the acceptability of treatment.

Mr. **Bruce.** I will just quote from an industry paper which may point you in the direction that indicates their concern.

> Some facilities may not be able to comply, not only because of expense, but because some properties are not large enough to meet RCRA-certified waste storage facility physical measurement requirements.

Mr. **Wybenga.** We do not anticipate, as the admiral mentioned earlier, that terminals will be required to take on the waste storage facilities. We expect a tank truck coming to a ship will be the means of removing the waste from the vessel. We do not see that that will cause any conflict.

Admiral **Bell.** If a terminal currently had an existing tank that they used for this purpose, it might not comply with the RCRA requirements. I do not see that as being a result of this legislation or MARPOL; that just happens to be something that existed and now does not comply with a new statute.

Since we are not anticipating requiring everybody to have reception facilities in the sense of storage tanks on their property within their confines, I cannot see where there is a conflict.

Mr. **Bruce.** That is just another assurance for industry that they may not have to contend with. Thank you, Mr. Chairman.

Mr. **Biaggi.** Mr. Smith?

Mr. **Smith.** Admiral, section 2(4) contains a different definition of "marine environment" than in the Port and Tanker Safety Act of 1978. Could you tell us what the differences are and what problems you foresee in those differences?

Admiral **Bell.** "Marine environment," under MARPOL and under this bill, was intended to have the broadest definition possible, since oil pollution is not confined to a narrow zone; oil pollution is a problem anywhere water exists. Therefore, under MARPOL, "marine environment" was given a very, very broad definition. It was not limited to international boundaries or anything like that, because pollution knows no treaty boundaries.

It is my understanding that in the Port and Safety Act, the term "marine environment" was concerned with the port state regulation of offshore lightering. It was in recognition that port states have a problem of reaching out beyond their territorial waters unless it is a condition for port entry.

The definition in the Port and Safety Act was drafted with the intent to describe the marine environment as that part of the oceans concerned with the lightering of a product that was destined for a U.S. port. It was put in there to tie that portion of the marine environment which is outside our control to the cargo itself which was destined for a U.S. port. Therefore, it is much more narrow and restrictive, and it was put in for a jurisdictional reason and not for a marine environmental pollution reason. I do not think there is a conflict between the two, though.

Mr. **Smith**. Regarding section 2(9), is there any difference between the definition of ship and the definition of vessel in section 3 of title 1, United States Code, and what is the significance of the phrase "operating in the marine environment" within that definition?

Admiral **Bell**. I can address 2(9); I am not sure of the other reference. I will let the other fellows thumb through the book here and see if they can find it.

In many other treaties, when we talk of safety, we are talking of national rights, international traffic, and domestic rights with respect to their shipping. One normally differentiates territorial waters, international voyages and domestic voyages for whatever the purpose of the treaty.

The intent here was that recognizing that pollution is universal and that pollution in one part of the ocean, regardless of whatever designation it has been given—national or international—it affects other countries and other places. Marine environment is broad, as I previously described, and the term ship was made as broad as possible to encompass all sources of pollution entering the marine environment.

I am not sure I am answering your question, because I am having trouble finding the other reference you spoke of, sir.

Mr. **Smith**. I was just referring to the definition of ship in section 2.

Regarding section 3(b)(2), what ships are specifically excluded by the MARPOL protocol, if any? I note that the Port and Tanker Safety Act of 1978 specifically excluded public vessels, certain offshore oil exploitation vessels, fishing vessels, and vessels in innocent passage. Would any of these vessels be covered by this bill?

Admiral **Bell**. Sir, it is going to take me a little time to think this one out. Could I submit that one for the record?

Mr. **Smith**. Yes.

Admiral **Bell**. I do not think there is a problem; it is just making sure I can correctly answer you. I would prefer to compare the two. As I understand it, you are interested in what other vessels are specifically excluded from MARPOL Protocol as compared to what, sir?

Mr. **Smith**. There is a reference in the bill in section 3(b)(2) to vessels that are excluded by the MARPOL Protocol.

Admiral **Bell**. Yes, sir.

Mr. **Smith**. I wondered which ships are excluded, and then in looking at the exclusion in the Port and Tanker Safety Act, I wondered if those vessels were excluded also.

Admiral **Bell**. I now understand the question; thank you.

Mr. **Smith**. Several sections refer to a seagoing ship. What is a seagoing ship?

Admiral **Bell**. Again, it is a very broad definition. It is basically anyone that goes to sea, literally. I think we would consider it anyone that operates outside the territorial water of the United States, and it would exclude ships operating on our river systems, because "ships" is such a broad definition.

Again, it was a recognition that pollution does not recognize any treaty boundaries. If I may add, sir, this is not as much of a problem for us as it is for some of the countries in northern

Europe, due to the extremely close proximity of countries to each other.

The attempt was to talk of anything that went to sea, not whether it was a domestic voyage, an international voyage, or a near-coastal voyage, or any of the other definitions that have been used and developed through the years for other purposes in other international agreements. We attempted here to address all ships in the marine environment that are outside the internal waters of a country.

Mr. SMITH. So this would not include the Great Lakes, or ships on the Great Lakes?

Admiral BELL. Sir, I cannot remember at this moment. Again, I would like to submit that for the record. I have to admit that I had the unfortunate circumstance of attending the 1973 MARPOL, along with Admiral Wallace who is sitting up there, and I cannot remember without thumbing through these pages. Again, I wlll submit that for the record, sir.

Mr. SMITH. Would you give us a recommendation as to whether you think we should have a statutory definition of "seagoing ship"?

Admiral BELL. My pragmatic recommendation would be no, sir, for the simple reason that once we define what it is, then we have an exclusionary clause. If you look at the purpose, which is to talk about anything that is operating in the marine environment, which is what this essentially is looking at, the minute you try to define what it is, somebody is going to come with an anomaly or a ship design to circumvent that definition. I think that is why the original drafters of MARPOL tried to leave it as broad as possible.

Mr. BIAGGI. If I may interject at this point, I think this is a critical issue and I would like to reinforce my understanding of it. This applies only to seagoing vessels. Is that what you are saying?

Admiral BELL. Yes, sir.

Mr. BIAGGI. How do you square that with anything in the marine environment? That is broader, is it not?

Admiral BELL. Yes, sir, but if I put the two together, we are looking at operating in the territorial sea of the United States, and beyond. Pragmatically, those are the vessels that have to wash their tanks on a routine basis and which have residues.

We have a different regime within our inland barge industry that MARPOL is not applicable to and was never intended to apply to, sir. There are other provisions we must make to address pollution problems for those vessels.

Mr. BIAGGI. I just wanted the record to reinforce that. I appreciated your original definition, but we have the inland water operators who are concerned about this definition. We do not like to leave legislation in a state of ambiguity, which only provides the potential for misunderstanding and conflict.

Admiral BELL. In answer to that, sir, there has to be a certain amount of recognition that the types of vessels that are trading in our rivers, lakes, basins, and sounds areas are relatively small; they are not amenable to most of the MARPOL practices and procedures. Although they may have pollution problems or antipollution measures may be necessary, they should be specifically addressed as to the type of vessel, and the internationally developed regime which was for large, seagoing vessels should not be arbitrarily applied to them.

I think their fear, as it was expressed to me, was that something intended for a supertanker was going to be applied to a 190-foot barge on the rivers, and that certainly is not the intent.

Mr. SMITH. The Secretary of the department in which the Coast Guard is operating is given primary responsibility for carrying out the provisions of the bill. What plans do you have, and how will the details of the annexes be implemented? I note that in the provisions of the Oil Pollution Act of 1961, which would be repealed by this act, there are contained more technical details than in this bill.

Admiral BELL. Do you mean with respect to reception facilities, sir, or with respect to the MARPOL and the protocol itself?

Mr. SMITH. I am referring to all the details in the annexes.

Admiral BELL. In national regulations already, there are regulations that parallel all of the provisions of the MARPOL Protocol that were not previously contained in the regulations that we put out in October of 1975. The details you are referring to, sir, are now contained in regulations which are on the street.

Mr. SMITH. What is contemplated or planned for coordination with the Secretary of State in section 9(f) regarding the referral of a violation to another country for action, and what relationship is contemplated between the Secretary of State and the secretary in sections 10 (b) and (c) regarding amendments to the MARPOL Protocol?

Admiral BELL. As far as the first part of your question, under other international treaties, particularly SOLAS, we currently have a provision for intervening with a foreign vessel when it is not in compliance with SOLAS, and have a procedure, through State, of notifying the flag state of our intervention. This is coupled with the notifying of the local council of the flag state. The ship does not get released, if it is a serious violation, until the violation is corrected. So we have a procedure now, through State, for notifying them under the existing SOLAS, and this would follow the same route.

With respect to the amendment procedure, sir, we have no prescribed procedure. I am not sure that anything much more than is contained in this Act would be necessary between State and the Secretary under which the Coast Guard is acting in order to carry out the requirements that are contained herein.

Mr. SMITH. Mr. Chairman, I have some additional questions that we would like to submit, if they would supply an answer in writing for the record. Thank you.

Mr. BIAGGI. I have a couple of questions.

The Massachusetts Institute of Technology and the Maritime Administration are contemplating a seminar on reception facilities for chemical tankers. Would you think that it would be proper to wait for completion of their studies before we proceed with the legislation?

Admiral BELL. Sir, we are aware of and have, in fact, cooperated with the study that is being undertaken between MIT and MarAd. In fact, I believe Captain Corbett's office has commented on the draft and has put in some inputs. We are also aware of the seminar, and we certainly would attend it if it is to be scheduled.

There are two things. One, I do not believe that that is currently scheduled firmly; that was the last information I had. It is a tentative thing they are talking of. After having reviewed the studies, we see no reason to delay this action pending a seminar that could possibly be held. I think we are knowledgeable, through our association with them, of what is going on up there, and I do not think there is anything that would come out of that that would materially change what we are discussing here today, sir.

Mr. **Biaggi**. Section 5 contains a blanket statement that a ship unreasonably detained or delayed is entitled to compensation for any loss or damage suffered thereby. The question that puzzles me is who is going to provide the compensation.

Admiral **Bell**. That is a good question, sir.

Mr. **Biaggi**. I know the question is pretty good; I am waiting for the answer.

Admiral **Bell**. I am not even sure what unreasonably delayed is.

Mr. **Biaggi**. That is not even an issue at this point. I just want to know where the money is coming from.

Admiral **Bell**. One has to determine first if the ship has been unreasonably delayed. I would say, sir, that depending on what kind of action is taken by the shipowner, it would probably come out of Coast Guard appropriations, or if it went against the United States, it would come out of the—you are asking a nonlawyer now, so I am kind of stumbling.

Mr. **Biaggi**. Well, you do not have to be a lawyer here; it is just plain commonsense. Somebody is talking about paying somebody.

Admiral **Bell**. If it was against the Coast Guard and the Secretary, it would be Coast Guard appropriations, as I understand it, sir. If it were against the United States, it would come out of the general fund that the General Accounting Office holds, I believe, for this purpose. That is the funding that is available. There is no specific funding set up for this purpose, sir.

Mr. **Biaggi**. You say GAO has funds for this purpose?

Admiral **Bell**. That is my understanding.

Mr. **Biaggi**. Should not the same thing be applied to terminal operators if detention or delays tie up their facilities?

Admiral **Bell**. No, sir. I am having trouble following that one. The intent here was that reception facilities would be reasonably available so that undue delays were not occasioned a ship. Most of the time, the undue delay is because the berth has been previously occupied or there are not sufficient facilities so that there is a queuing of ships.

I have difficulty believing that a terminal operator would be delayed, because once a ship arrives alongside his terminal, as long as he can handle the product and the waste as we have discussed, I do not see where he would be delayed or where delays would involve the terminal operator, per se.

Mr. **Biaggi**. Let us back up a little bit. What would be the procedure for a ship to be compensated? Has there been a procedure established?

Admiral **Bell**. No, sir. The step-by-step procedures for carrying out a compensation in the event of an unreasonable or undue delay have not been developed. They would have to be part of the regulatory development; it is how the aggrieved would address the Coast Guard in this case.

Mr. **Biaggi.** That is in the Coast Guard's contemplation?

Admiral **Bell.** Yes, sir, because it is a requirement in here; we will have to address it in the regulation. Truthfully, I do not know how specific we will have to be, other than a procedure that he can address his complaints to.

Mr. **Biaggi.** Thank you very much, Admiral.

Admiral **Bell.** Thank you, sir.

[The following was received:]

Department of Transportation,
U.S. Coast Guard,
Washington, D.C., June 13, 1980.

Hon. Don Young,
Ranking Minority Member, Subcommittee on Coast Guard and Navigation, Committee on Merchant Marine and Fisheries, House of Representatives, Washington, D.C.

Dear Mr. Young: Enclosed are the responses to the Subcommittee's questions on H.R. 6665, a bill entitled the "Act to Prevent Pollution from Ships."

Sincerely,

J. M. Fournier,
Captain, U.S. Coast Guard,
Chief, Congressional Affairs Staff.

Questions Regarding H.R. 6665: "The Act To Prevent Pollution From Ships"

1. Regarding section 2(9), is there any difference between the definition of "ship" and the definition of "vessel" in section 3 ot title 1, U.S. Code?

2. Regarding section 3(b)(2), what ships are specifically excluded by the MARPOL Protocol? The Port and Tanker Safety Act of 1978 specifically excluded public vessels, certain offshore oil exploitation vessels, fishing vessels and vessels in innocent passage. would any of these vessels be covered by this bill?

3. Several sections refer to a "seagoing ship". What is a seagoing ship? Would this include the Great Lakes?

4. The bill makes reference to EPA and the State Department. What departments or agencies, if any, other than the Coast Guard would prescribe regulations, procedures, standards, criteria, et cetera, under the provisions of this bill and for what purpose?

5. What is contemplated in the way of an appeal to and action of the Secretary when a certificate is suspended or revoked under section 6(c)?

6. In view of the conclusion in your testimony that reception facilities needed for the domestic trade have proven to be adequate and that you do not anticipate any problems meeting the requirements for oil reception facilities contained in the MARPOL Protocol, is the reception facility survey in section 6(f) necessary? If so, what "measures needed to comply with the MARPOL Protocol" will be examined during the survey of existing reception facilities? What ports or terminals are not now covered with certifiable facilities for oil and for noxious substances? How many ports or terminals do you anticipate will be issued a certificate?

7. What is the relationship between the inspection in section 5(c) and the inspection in section 8(c)?

8. Regarding section 14, how will the effective date of the MARPOL Protocol be promulgated if later than the date of enactment of this bill?

9. Generally, what regulations or procedures are in effect pursuant to the Oil Pollution Act, 1961?

10. What reception facilities exist in Valdez and are they adequate for the purposes of this bill? Can you provide the statistics regarding Valdez subsequent to 1976, which were not included in Appendix I of A Preliminary Assessment of the Demand for Reception Facilities Stemming From the Implementation of MARPOL '73 by Fritz Wybenga.

11. Under section 2(10), the definition of "terminal" applies to an "onshore facility . . . located in the navigable waters of the United States or subject to the jurisdiction of the United States and used . . . for the transfer or other handling of a harmful substance." This definition would seem to exclude a harbor-side facility that is neither "in" said waters nor subject to U.S. jurisdiction. Is clarification

needed? What onshore facilities are not subject to U.S. jurisdiction? Must the terminals in question be associated with transfers directly from a ship or could an inland facility receiving transfers by rail, truck or pipeline fulfill the purposes of this bill?

12. Under section 5(a), who will be authorized ship certifiers or issuers of MARPOL certificates? Have you considered a delegation of this authority to an agent such as ABS?

13. Under Section 6(a), who will be authorized port or terminal certifiers? Again, is a delegation to an agent such as ABS contemplated?

14. Under section 6(e), will the Secretary deny entry to a ship even though the ship does not intend or need to discharge wastes in the desired port of entry?

15. Does the Coast Guard now have the necessary manpower and expertise to implement the provisions of H.R. 6665? What are your anticipated needs?

LIST OF RESPONSES

1. Yes. "Ship" as used in the Protocol and H.R. 6665 is broader than "vessel" as defined in 1 U.S.C. § 3. "Ship" includes a fixed platform, which is not usually consided a "vessel." The definition of ship in section 2(9) of the bill should not be altered.

2. Foreign public vessels, as described in Article 3(3) of the Convention, are specifically excluded by the Protocol. We have been unable to determine from our files why section 3(b)(2) was inserted. However, because the Secretary would not promulgate regulations for foreign public vessels, it is recommended that the sentence in lines 2–4 on page 5 of the bill be deleted. Certain offshore oil exploitation vessels and fishing vessels which are exempted from H.R. 6665 or the Protocol. Some operational requirements of the Protocol, such as the discharge requirements of Regulation 9 of Annex I, apply to all seagoing ships. Therefore, these vessels should not be exempted from H.R. 6665. Regarding innocent passage, the bill does not apply to foreign flag ships operating on the high seas. Within the territorial sea, the discharge requirements of the Federal Water Pollution Control Act control, and do not exempt vessels on innocent passage. With respect to construction and equipment, the PTSA controls, and the exemption for innocent passage is consistent with the Protocol. We do not believe it is necessary, therefore, to add an exemption in H.R. 6665 for vessels on innocent passage.

3. A seagoing ship generally described a ship which normally operates in or seaward of the territorial sea. Therefore, ships which operate solely in the Great Lakes would not normally be considered seagoing ships. However, a ship does not lose its status as a seagoing ship when it operates in internal waters. Seagoing ships may operate in the Great Lakes. Thus, reception facilities may be required to receive oil or noxious liquid substance residues from seagoing ships when in port.

4. The bill provides that the Secretary shall prescribe regulations. Except with respect to public vessels (under section 3(d) of the bill), it is anticipated that the Coast Guard will be the only agency delegated the authority to promulgate regulations. This process will include consulation with the Environmental Protection Agency and other interested agencies. The Coast Guard has taken preliminary steps to establish liaison with EPA as well as MARAD, COE, NOAA, and other interested agencies.

5. It is contemplated that the appeal procedure to be prescribed by regulation will be similar to that contained in 33 CFR 160.131 (44 FR 62893).

6. The Coast Guard has gathered a good deal of information on available reception facilities. There are, however, gaps in the data. It is not expected that a survey of the entire industry will be necessary. The authority to conduct a survey would, however, enable the Coast Guard to obtain data where it is currently lacking.

Further surveys would ask questions to those of previous questionaires. The questions would inquire about the volume and types of cargoes handled, the types of reception facility provided, its treatment capacity, the rate at which it can receive wastes, any limitation on treatment and whether the facility has been permitted by EPA or a state water quality board.

Preliminary studies have shown which ports transfer oil in volumes sufficient to require reception facilities. Data is also available on what reception facilities are available in a particular port. In all likelihood the reception facilities available are associated with the terminals which ship large volumes of oil from the port. A matching of reception facilities with terminals is necessary before it can be said with certainty that facilities are adequate. The preliminary study has shown that 41 ports handling bulk petroleum products will require reception facilities. This number may change slightly depending on how ports are ultimately defined. For example, an area defined as a port by the Corps of Engineers might include a number of terminals which collectively load more than an average of 1000 metric tons of oil per day. If the definition of a port in regulations promulgated under the proposed bill is consistent with the Corps' definition then the number of ports requiring facilities will be the same as that predicted by the premliminary study.

In the case of chemicals, 28 ports were identified as possibly needing reception facilities. A number of these ports only transfer Category B, C or D noxious substances for which the need for reception facilities can largely be eliminated through the use of efficient stripping of tanks. A more detailed review of each port's trade characteristics will probably significantly reduce the number of ports requiring reception facilities.

7. The inspection authorised in section 5(c) of the bill is directed towards the condition of the ship, as evidenced by its MARPOL certificate. This relates to Article 5 of the Convention. Section 8(c) of H.R. 6665 is directed towards detection of unlawful discharges of harmful substances, and relates to Article 6 of the Convention. The two provisions are complementary.

8. The effective date of the MARPOL Protocol, and hence the Act, if later than the date of enactment of the Act, is determined in accordance with the entry into force provisions of the Protocol, Article V. The effective date is therefore automatic, and does not require administrative "promulgation," though sufficient notice would be given by the Coast Guard.

9. Regulations which are in effect pursuant to the Oil Pollution Act, 1961 are found in Part 151 of Title 33 of the Code of Federal Regulations. Additional regulations to implement the 1969 amendments to the Act are in 33 CFR 157. These regulations establish design and equipment criteria, set operational standards and personnel requirements, require oil record books and provide for penalties.

10. In accordance with the Agreement and Grant Right-of-Way for Trans-Alaska Pipeline entered into between the United States and the companies involved in the Trans-Alaska Pipeline a waste-water treatment facility was provided in conjunction with the terminal facility at Port Valdez.

The facility is capable of receiving all oily water discharged from any tanker loading at the terminal. The effluent contains no more than 10 parts per million of oil. According to 1977 Army Corps of Engineers data 9,310,000 metric tons of crude oil and 160,000 metric tons of product oil were shipped from Valdez. The requirements for the Valdez reception facility contained in the agreement are more stringent than those of H.R. 6665 and therefore the Valdez facility will be adequate for the purposes of this bill.

11. The definition of "terminal" includes an "onshore facility" used or intended to be used for the transfer or other handling of a harmful substance, or an "offshore facility" located in the navigable waters of the United States or subject to the jurisdiction of the United States and used or intended to be used to transfer harmful substances. The Coast Guard believes the definition is clear and no further clarification is needed. Since the subject of this bill is marine transfers, the bill is not intended to be concerned with rail, truck, and pipeline transfers.

12. International Oil Pollution Prevention Certificates will be issued similar to other internationally recognized certificates such as the SOLAS Safety Equipment Certificate. These are issued by Coast Guard field offices and is a part of our routine business. At this time we do not anticipate delegating the authority to issue certificates to an agent such as ABS.

13. The final regulatory scheme has not been developed in this matter. It is anticipated that the local Captain of the Port will be the one to certify ports or terminals. This will be following establishment of criteria for certification as described in Section 6(a). At the present, no delegation to an agent such as ABS is contemplated.

14. The Coast Guard views reception facilities currently available to be largely adequate for meeting the needs of ships as specified by the 1978 MARPOL Protocol. As such it is felt that the Secretary will seldom be required to exercise the authority provided under section 6(e). Yet this section will give the Secretary the needed authority to ensure that adequate facilities are available in instances where they are found to be inadequate.

In the exercise of this authority we consider that the Secretary's discretion is contained in how the Secretary defines adequacy and in how he issues the certificate required by section 6(c).

15. Providing the necessary manpower and expertise to implement the provisions of the bill would constitute an increased loan on already thin resources. It is forecasted that in the first year the endeavor would call for approximately fourteen people, twelve military and two civilian, and approximately $338,000. This proposed change in resources is currently being reviewed by the Coast Guard's budget process. Nevertheless, it is felt that the benefits from the program merit the change in resources to this area of concern.

Mr. BIAGGI. Mr. Norman Wulf, Director of the Office of Marine Science and Technological Affairs, Department of State.

STATEMENT OF NORMAN A. WULF, ACTING DEPUTY ASSISTANT SECRETARY FOR OCEANS AND FISHERIES AFFAIRS, BUREAU OF OCEANS AND INTERNATIONAL ENVIRONMENT AND SCIENTIFIC AFFAIRS, DEPARTMENT OF STATE; ACCOMPANIED BY PETER OLSON, LEGAL ADVISER, DEPARTMENT OF STATE

Mr. WULF. Mr. Chairman, I am accompanied by Peter Olson, from the Legal Adviser's Office at the Department of State.

The Department of State fully supports passage of H.R. 6665, and urges that it be acted upon favorably and as quickly as possible. Passage of this legislation will put in place the domestic implementation system necessary for the United States to proceed to ratification of the MARPOL Protocol itself.

As you know, the MARPOL Protocol was negotiated and concluded some 2 years ago as a direct and unprecedentedly rapid response to a call by President Carter for development of new international agreements to raise tanker safety standards in the area of construction, equipment and inspection for the purpose of reducing the risk of future tanker disasters. The U.S. initiative arose from a series of vessel accidents, of which the most notable was that of the *Argo Merchant* off the New England coast. Although such well-publicized events as the loss of the *Argo Merchant* provided the immediate impetus for the initiative, the need for more effective international controls of pollution from tankers had been increasingly felt following the 1973 conference.

The prior response of the international maritime community on the whole had been good, starting with the recognition of the existence of the problem in the 1954 Convention for Prevention of Pollution of the Sea by Oil, and carrying through to development, in 1973, of the MARPOL Convention. Nonetheless, the extraordinary increase in the size and number of tank vessels, and the consequent likely increase in the frequency of mishaps and seriousness of the environmental harm resulting from them, convinced the United States and other members of IMCO of the need to further strengthen the international regime.

Accordingly, the United States, pursuant to a directive by President Carter in 1977, proposed that new international measures be taken with the objective of reducing accidental pollution to the minimum level possible, and eliminating operational pollution resulting from routine procedures such as debalasting and tank washing operations. Barely 10 months after the United States first raised this matter in IMCO, that organization convened an International Conference on Tanker Safety and Pollution Prevention, a conference which resulted, among other things, in the conclusion of the 1978 MARPOL Protocol.

The 1978 Protocol incorporates by reference the provisions of the 1973 MARPOL Convention, which at that time had not been ratified either by the United States or a sufficient number of other states to enter into force. The 1978 protocol contains a number of new inspection, construction and operating standards, and applies them to significantly greater number of tankers than would have been required under the 1973 MARPOL Convention alone. The protocol effectively dealt with one significant impediment to ratification of MARPOL 1973 by delaying for 3 years from entry into force of the 1978 MARPOL Protocol the application of annex II thereof with its requirement that adequate reception facilities be made available for the disposal of noxious liquid substances in bulk.

The United States may justly take pride in the strong affirmative international response to our initiative, but we now have the obligation to demonstrate that the United States is willing to accept the terms of the agreement reached in 1978. Passage of H.R. 6665 will be a very large step in this process, and the Department of State therefore hopes that the Congress will act on this legislation quickly.

A great number of foreign states participated in the negotiation of the MARPOL Protocol, even though in some cases it will impose significant costs on them. The participants in the TSPP Conference went to work with good will and a desire to fashion an internationally acceptable response to the marine pollution threat. Many now are waiting to see whether the United States will carry through on the arrangements negotiated in 1978 and accept the internationally-agreed response. In our view, H.R. 6665 would do so, on the domestic side.

Equally important, however, is ratification by the United States of the MARPOL Protocol itself. The TSPP Conference recommended that signatories bring the MARPOL Protocol into force by June of next year. In order to do so, sufficient instruments of ratification must be deposited with IMCO no later than June of this year. At this juncture, it seems unlikely that the United States will meet this deadline. It is nonetheless important that we make every effort to come as close to meeting that deadline as possible.

To date, 12 states have signed the MARPOL protocol; one of these has ratified it. The other 11, along with a number of countries which helped negotiate the protocol but have yet to sign it, are waiting to see what action the United States takes before themselves taking definitive action. Favorable action by the United States on the protocol, coupled with legislation implementing its terms, will offer confidence that an acceptable and durable international regime has been established and constitute a strong argument encouraging other states to ratify the protocol as well. Similarly, it will assure a worldwide system for protection of the marine environment, not just the coastal waters of the United States. There is every reason to believe that the exercise of leadership in ratification, in the same manner as we provided leadership in negotiation, by the United States will have the desired result of bringing the protocol into force in the near future.

That concludes my statement, Mr. Chairman. I will be happy to attempt to answer any questions you have.

Mr. **Biaggi**. You make reference to one country ratifying it. Which country was it?

Mr. **Wulf**. Our records indicate that Uruguay has ratified and completed all the formalities necessary in their system. We have unofficial information that Peru also is in a similar situation, but we do not have official verification of that at this time.

Mr. BIAGGI. You say the other countries are waiting for the United States to sign it. Is that all that is required, or do they have some apprehension?

Mr. WULF. I think many of them are just unwilling at this point in time to undertake the burdens to examine this if the primary proponent of many of the standards now contained in the 1978 MARPOL is itself unwilling to undertake that obligation.

Mr. BIAGGI. The international maritime community at one time was intent on bringing the 1973 Marine Pollution Convention and the 1978 marine pollution protocol into force by mid-1981. What is their present thinking on the target date?

Mr. WULF. I am sure they must share the concern that we have that that target will have to be slipped, because it must have sufficient ratification by June of this year, and it is clear that we are nowhere near that.

Mr. BIAGGI. Resolution 21 adopted by the 1973 Marine Pollution Conference urged governments to take appropriate action to insure adequate reception facilities. Do you have any information or knowledge as to the present adequacy of reception facilities in foreign ports?

Mr. WULF. No, sir, I do not. I could certainly try to supply an answer to that question for the record.

Mr. BIAGGI. We would appreciate it.

[The following was received:]

ADEQUACY OF RECEPTION FACILITIES IN FOREIGN PORTS

IMCO has developed a reporting system, for use following entry into force of MARPOL '78, for collecting reports from vessels on the adequacy of facilities at ports they visit. This system is not in operation at this time as the MARPOL Protocol has not yet been brought into force. It is anticipated that IMCO will follow the system now used for reporting vessel deficiencies, and make information and reports available to the Parties without necessarily vouching for their accuracy.

Mr. BIAGGI. About 6 years ago, the Coast Guard developed a note to IMCO concerning the "review of reception facilities in port and the treatment of waste from vessels," which included data on the availability of some reception and treatment facilities in U.S. ports, and provided a report on treatment methodology for oily wastes. Has anything like this been prepared for chemicals and similar hazardous material wastes?

Mr. WULF. I do not have any personal knowledge of that. I am sure that something has been prepared. Again, I would have to submit an answer for the record.

[The following was received:]

CHEMICALS AND SIMILAR HAZARDOUS MATERIAL WASTES

According to information supplied to the Department by the Coast Guard, the United States has provided IMCO with a copy of an EPA report dealing with treatability of these wastes when carried in tank trucks, a situation closely analagous to that created by their carriage in tankers. The United States has also provided IMCO with a paper describing the methodology to be used in determining which U.S. ports may require development of facilities. In the opinion of the Coast Guard, a high percentage of U.S. ports—in particular the larger ones—are relatively well-equipped to handle the reception of chemicals and similar hazardous wastes.

Mr. BIAGGI. You are familiar, I take it, with the opposition of the terminal operators to this legislation?

Mr. WULF. I have heard of it, yes, sir.

Mr. Biaggi. How would you respond to their concerns?

Mr. Wulf. As I understand the intent of the legislation and of the convention itself, if their primary concern relates to providing repository facilities for noxious or hazardous substances other than oil, the convention itself says that that requirement will not take effect until 3 years after the entry into force of the convention. Even if the legislation were passed now, the requirement to comply with it—again, this is my understanding—would not take place until 3 years after entry into force.

As I have indicated earlier, we are over 1 year away from entry into force, so we are talking about at least 4 more years to plan for and insure that there are proper prospects for meeting these very legitimate concerns.

Mr. Biaggi. We are really talking about more than 4 years when you consider that we will not be in a position to ratify it this term.

Mr. Wulf. It would be a minimum of 4 years.

Mr. Biaggi. Mr. Smith?

Mr. Smith. You heard Admiral Bell's answer to the question on coordination with the Department of State in section 9(f) regarding the referral of a violation to another country for action. Do you agree with his answer?

Mr. Wulf. I would like to ask Mr. Olson from our Legal Advisers Office to answer that if I may.

Mr. Olson. I really have nothing to add to the response that you have heard from the Coast Guard. I think we have established procedures, but I am personally not familiar with them.

Mr. Smith. What relationship is contemplated between the Secretary of State and the Secretary in sections 10 (b) and (c) regarding amendments to the MARPOL Protocol?

Mr. Olson. We would read those provisions as calling for coordination between the two Departments, and agreement on the course of action to be taken. I do not believe it is anticipated that there would be any occasion on which either Department would wish to take action which the other would not agree with. Do I understand your question correctly?

Mr. Smith. Yes.

Mr. Wulf. There is an additional safeguard in that the amendments themselves will have first been discussed in the MEPC, where the Coast Guard has the predominant role in representing the United States. The State Department is also represented in the MEPC, but the amendments will first be discussed and considered there before there is ever a question as to whether the United States would wish to formally object to the entry into force of an amendment adopted by the MEPC. There will be many opportunities for consultation even prior to the stage contemplated in section 10.

Mr. Smith. So I take it that you would be relying, then, on the Transportation or Coast Guard expertise in responding here.

Mr. Wulf. In the technical aspects of construction and standards, and things of that nature, absolutely.

Mr. Smith. Thank you.

Mr. Biaggi. Mr. Bruce?

Mr. Bruce. Mr. Wulf, while recognizing the environmental benefits that flow from something like this, some members are concerned about the cost of doing business in the United States. Have you considered whether the higher unilateral standards being imposed in this country through a protocol such as this have any adverse impact upon the maritime industry as a whole?

Mr. Wulf. It would be our view, sir, that by ratifying the convention and insuring that these standards apply to all of our "competitors," if I can use that phrase, we insure that we are not putting ourselves in an adverse competitive position. This is one reason why we think it is important.

We already have many of these standards in place under the 1978 Port and Tanker Safety Act. Now we are going a little bit further, but in anticipation of the implementation of this treaty. If we can get this treaty in force so that all of our potential competitors are under an equal potential burden, then I think the economic disincentives are balanced.

Mr. Bruce. Let me just state it one other way. Assuming our competitors do not ratify it, then what position does that put us in?

Mr. Wulf. Then the question ultimately has to come down to, are we willing to pay some additional cost for protection of the marine environment from these polluting substances. I think there have been some studies done by the Coast Guard, which I cannot point to particularly, but they have tried to estimate and quantify the actual financial costs involved in many of these steps. By and large, it is my understanding that the costs are not that great. They are ultimately going to be passed on to the consumer, as is always the case with indirect costs. As a consequence, perhaps the U.S. consumer is going to be in a somewhat disadvantageous position.

Mr. Bruce. Thank you, Mr. Chairman.

Mr. Biaggi. Thank you, gentlemen.

Admiral Benkert, president of the American Institute of Merchant Shipping.

STATEMENT OF REAR ADM. WILLIAM M. BENKERT, U.S. COAST GUARD (RET.), PRESIDENT, AMERICAN INSTITUTE OF MERCHANT SHIPPING, ACCOMPANIED BY BARBARA BURKE, LEGISLATIVE ADVISER, AMERICAN INSTITUTE OF MERCHANT SHIPPING

Admiral Benkert. With your permission, Mr. Chairman, I have with me Ms. Barbara Burke, our legislative adviser of the American Institute of Merchant Shipping.

Mr. Chairman, I have a very brief statement which, with your permission, I would like to read, sir.

I am William M. Benkert, president of the American Institute of Merchant Shipping, commonly known as AIMS, the principal trade association representing owners, operators, and charterers of American-flag, ocean-going bulk vessels. The 29 companies which are members of AIMS transport oil, petroleum products and chemicals to and from U.S. ports and thus, obviously, have a direct interest in H.R. 6665, a bill to implement the 1978 protocol to the International Convention for the Prevention of Pollution from Ships, MARPOL.

AIMS strongly supports prompt enactment of H.R. 6665 in keeping with our long-standing safety and pollution prevention objectives. We also support the legislation because it will facilitate ratification of the MARPOL Convention Protocol. We believe that international solutions to global problems such as marine pollution ultimately yield the most effective results.

Ratification by the United States of the 1978 MARPOL Protocol, along with the Safety of Life at Sea, SOLAS, protocol, negotiated in the IMCO forum at the same time, would give a much needed shot in the arm to our credentials and our credibility as a leader in maritime safety and pollution prevention matters and to the coming into force of the agreements. For too long, U.S. delegations have gone to international conferences and pressed—in some cases, arm-twisted—other countries into going along with our national initiatives in these areas, only to come home and face a failure to ratify what we have persuaded others to agree to.

Now, we recognize, Mr. Chairman, that a great deal of what was negotiated in 1978 has already been, or is being, implemented in areas of U.S. jurisdiction through Coast Guard regulations based on national legislation. In the eyes of the international community, however, U.S. ratification of the protocols would have a tremendous moral and practical impact.

With regard to domestic implications of the MARPOL protocol, AIMS is aware of and fully appreciates the problems facing this country in the waste disposal area. H.R. 6665 leaves unanswered the important questions of who will assume the responsibility for vessel wastes which can no longer be disposed of at sea; how any new facilities needed to receive the wastes will be financed, and where the wastes will ultimately be disposed of. In keeping with U.S. traditions, the bill relies upon private industry to deal with this problem. We hope that, given the several years which will elapse before certain MARPOL requirements take effect, it will be solved. Further, the survey authority contained in section 6(f) of the bill, we feel, should be helpful in identifying areas where Government assistance or, perhaps, incentive programs may be necessary.

AIMS believes that owners of bulk oil and chemical cargoes will take appropriate steps to insure that the vessels they employ have safe berths; that is, places to dock where they can comply with the law. General cargo facilities may have some degree of difficulty fulfilling their roles in this environmental improvement effort. We trust that all ports and terminals, through working with shipowners, shippers, and others who benefit from their services, will be able to meet this challenge in the same way they have handled other environmentally motivated requirements.

We do have one technical problem, Mr. Chairman, presented by section 6(e)—probably a small one. A literal reading of this provision would apparently preclude a vessel from calling at an uncertificated port or terminal even if it does not intend to use reception facilities, either because it does not need them at all or intends to use them at perhaps a later docking place.

In conclusion, Mr. Chairman, AIMS sincerely appreciates the opportunity to express its strong support for the bill. We hope you will consider our concern regarding section 6(e)—again, a small point. And if we can do anything further to help you expedite enactment of the bill or, for that matter, preparation for ratification of the conventions, we are prepared to make our best effort, Mr. Chairman.

Thank you, sir.

Mr. **Biaggi**. Thank you for your statement and also for your recommendations; staff will look at them and see if they are compatible.

It has been stated that once the convention is in force and legislation is enacted, the adequacy of reception facilities will resolve itself because there will be a mandate to have them or lose port business. This will provide all economic incentives that are required by port authorities.

Further, the chemical industry, like the oil industry, will establish adequate facilities or stand to lose business. Would you care to comment on those observations?

Admiral **Benkert**. I believe that exactly what has been said there, Mr. Chairman, is basically true. I think that that is a fair presentation of what will happen in this kind of a procedure.

I would like to add this, if I might, Mr. Chairman. I do understand, I think, quite well, the problems of terminal operators, particularly some terminal operators, with regard to this subject of provision of reception facilities. I think Admiral Bell's clarification of the Coast Guard's approach to this that he gave this morning should perhaps be helpful in allaying some of the fears regarding stringent, Coast Guard-imposed requirements for specific reception facilities and capabilities.

But I really think, Mr. Chairman, the problem is one of disposal rather than reception facilities, regardless of whether you are talking about large amounts or small amounts of toxic materials. The shoreside aspect of working with EPA under perhaps RCRA—together with local statutes, local requirements, State authorities, and so forth—is where you get into a problem. The shoreside plant is trying to insure that it is properly able to take care of the wastes from ships.

Mr. **Biaggi**. There is no question that the question of legal dump sites is a very grievous one. We all know about the hundreds if not thousands of illegal dump sites, and Congress is now attempting to address itself to its resolution. I have the same concern about that, frankly. There is a complex constituency out there that will have to be satisfied.

Admiral **Benkert**. I guess what I am trying to say is I do not think we should delay our work in this environmentally protective and sound matter that we have here, predicated on these other considerations, which I feel can be resolved. But they do need to be resolved, sir.

Mr. **Biaggi**. Well, there seems to be a substantial period of time provided for addressing a solution to that. With the new initiative of the Congress and legislation being considered by Commerce—as a matter of fact, I think it has been reported out and has gone to rules—on the House side, at least, with relation to dump sites, there might be some resolution.

Has the industry done an economic impact study with respect to reception facilities for oily wastes and chemical wastes?

Admiral **Benkert**. On an overall scale, Mr. Chairman, I cannot answer your question. All I can say is that a number of our members have looked specifically at their trades, at their vessels, and at the impacts, and have told me personally that they feel they can take care of the problems, that they are prepared to take care of it, and that obviously, in the long pull, there may be some economic impacts. But they are prepared for this in the same manner as, for example, they have been prepared for implementation of the specific provisions of the 1978 protocols themselves, as far as ship design, construction and equipment are concerned.

Some of these areas, as Mr. Bruce mentioned earlier in a previous question, are going to cost money; there are economic considerations here. But I think the United States, of course, has already made its position very clear in the international community and nationally in saying that we are prepared as a country to foot the bill for some of these environmental improvements. And that is what we are talking about here, sir.

Mr. BIAGGI. Do you have any comments on any of the prior testimony?

Admiral BENKERT. Well, I listened to it all very thoroughly, Mr. Chairman.

Mr. BIAGGI. That is why I asked the question.

Admiral BENKERT. Knowing me, I probably do, but right off the top of my head at the moment, no, sir. I was very much interested in the questions that Mr. Bruce asked regarding economics, and also the questions on the reception facilities.

Because of my past background with the Coast Guard over many years, particularly dealing with the State Department, I would like to throw in 2 cents worth. I am delighted to see the State Department pushing ratification of this convention, because I think they have been sitting on their duff for too long, failing to push the ratification of conventions.

Also, I know that in the past and currently, the Coast Guard's relationship with the State Department has been very excellent insofar as using port State/flag state concepts in approaching foreign countries' vessels. I think that is an area where the Coast Guard and the State Department have worked very well together to put the arm on substandard vessels of foreign states, if I may use that term.

Mr. BIAGGI. I do not know anyone who would stay you from using any one of your unique terms, Admiral; they have added color to the years of testimony, while you were in the Coast Guard earning your reputation internationally. If I recall correctly, you were deeply involved with the whole process of these protocols.

Admiral BENKERT. Yes, sir. I had the privilege, along with Admiral Wallace, of course, of being the primary Coast Guard representatives in our U.S. delegation. We believe very strongly in international action, Mr. Chairman, and I do believe very strongly that the approach to these protocols—not just to MARPOL, but to SOLAS and to the STW, Standards of Training and Watchkeeping, Convention—will be a very definite shot in the arm for IMCO, for international agreements, and for the United States in this whole field.

Mr. BIAGGI. You make reference to some methods of cajoling and entreating and arm-twisting. Which one of you did the arm-twisting, you or Admiral Wallace?

Admiral Benkert. Well, he is a little smoother than I am, Mr. Chairman. I think he was the cajoler and I was the arm twister.

Mr. Biaggi. Thank you. Mr. Smith?

Mr. Smith. I do not have any questions.

Mr. Biaggi. Mr. Bruce?

Mr. Bruce. I just have one question. Just so I understand these terms. The terminal operations have said, "The terminal or port would charge the vessel owner or operator for the service." Is that an obligation that the vessel operator is willing to assume—his pro rata share of that cost?

Admiral Benkert. Yes, sir; I think that is expected as a cost of doing business.

Mr. Bruce. Thank you, Mr. Chairman.

Mr. Biaggi. Admiral, Ms. Burke, thank you very much.

Admiral Benkert. Thank you, Mr. Chairman.

Mr. Biaggi. I would like to make a comment about the association you represent, Admiral. Since the time I have been on the Merchant Marine and Fisheries Committee, they have been a very progressive and contributing element in the whole legislative process. They are not always easy, but they are generally on the right side of the question.

Admiral Benkert. I thank you very much, Mr. Chairman, and I will pass that on to our members, because I think they will be delighted to hear that. Thank you.

Mr. Biaggi. Mr. Clifton E. Curtis, counsel, Center for Law and Social Policy.

STATEMENT OF CLIFTON E. CURTIS, COUNSEL, CENTER FOR LAW AND SOCIAL POLICY; ACCOMPANIED BY MICHAEL M'GONIGLE, FELLOW, INTERNATIONAL PROJECT, CENTER FOR LAW AND SOCIAL POLICY.

Mr. Curtis. Thank you, Mr. Chairman. My name is Clifton Curtis, a lawyer with the Center for Law and Social Policy, a public-interest law firm in Washington, D.C. I appreciate the opportunity to appear before your committee today to provide the views of 14 national environmental organizations. Those organizations are listed in the prepared testimony, which I would like to submit for the record at this time.

Mr. Biaggi. Without objection, with our heartfelt thanks.

Mr. Curtis. Thank you Mr. Chairman. I will submit a copy from those I brought with me today, since yesterday's version, which was hand-delivered to the subcommittee, did not have the appendix, and there are a couple of minor corrections that I have made.

With me at the table, Mr. Chairman, is Mike M'Gonigle, a fellow with the Center's international project, and I have asked him to join me in the event you might have questions, especially concerning IMCO, because of his detailed involvement with the subject of international regulation of tankers.

As you know from our past participation with the work of this subcommittee, the Center for Law and Social Policy has been deeply involved in the efforts to control marine pollution for over 6 years. Center attorneys were among the U.S. delegates to both the 1973 MARPOL Convention and the 1978 TSPP Convention. Throughout our participation in congressional reviews and implementation of legislation, we have stressed the need for a comprehensive approach to the regulation of tanker design, equipment and operations in order to reduce both accidental and operational marine pollution.

At the outset, I wish to express the appreciation of the environmental organizations for the work the Coast Guard has done in preparing this legislation and bringing it before this subcommittee. This legislation is the result of over 3 years of work that began with the so-called Carter Initiatives, the message to Congress in March of 1977. It was as a direct result of these initiatives that IMCO convened the 1978 TSPP Conference. With the United States taking such a lead role in this conference, it is gratifying that we are moving toward complete implementation of the 1978 MARPOL protocol. As a matter of priority, therefore, we would urge the Government to deposit its instrument of ratification with IMCO as soon as possible.

In this context, we wish to emphasize to this subcommittee the useful role that proposed domestic American actions have had in the past——

Mr. BIAGGI. Mr. Curtis, forgive me for interrupting, but I am simply going to have to leave at this point to respond to that vote. Rather than recess and adjourn, I would ask you to continue and Admiral Ratti, chief counsel, will preside.

Mr. CURTIS. Fine, Mr. Chairman.

[Whereupon, Mr. Ratti assumed the Chair.]

Mr. CURTIS. We wish to emphasize to this subcommittee the useful role that proposed domestic American actions have had in the past in prompting the international community to enact measures controlling marine pollution caused by vessels transporting oil or noxious substances.

In addition, through the United State's active participation in the work of IMCO and its committees, primarily the MEPC, continuous upgrading of international standards can be encouraged. We recommend that the Congress continue to monitor progress internationally and at home as there is still much work to be done. This was forcefully brought home to the participants at the TSPP Conference as a result of the *Amoco Cadiz* grounding just weeks after that conference had concluded. That grounding pointed to further gaps in the legal regime, such as the nature of salvage operations.

The present proposed legislation now before this subcommittee contains a provision in section 4(b) that provides that, "The Secretary shall prescribe any necessary or desired regulations to carry out the provisions of the MARPOL Protocol or this Act." The environmental organizations look forward to advising the Secretary of DOT on future regulations which will implement MARPOL and this act.

We would point out, however, that nothing in MARPOL prevents the United States from enacting more stringent regulations both for vessels engaged in domestic trade and for international vessels visiting its ports. This power is specifically granted in section 7 of the PTSA of 1978.

We have a number of suggestions concerning specific sections of H.R. 6665 which we have briefly discussed in our prepared statement and which I will summarize as appropriate. We have identified some of the areas of ambiguity in the legislation, and we would like to point them out for the subcommittee's benefit.

First, section 3(c) of H.R. 6665 would be improved by changing it to correspond to the original wording of article (5)(4) of the 1973 MARPOL Convention. The original terminology is more direct in insuring that nonparties to the convention will gain no benefit from nonratification as the convention itself will be applied to them. In my prepared testimony, I have suggested specific language that would replace that contained in the current bill.

Second, with respect to section 4(a), there has been some confusion in the past about the definition of "seagoing ships." That matter has been addressed earlier this morning in the testimony of Admiral Bell and others. We recommend that, as a minimum, the standards of the MARPOL Protocol and of annexes I and II be applicable not only to all sea-going ships, but also to ships engaged in domestic trade, including Great Lakes vessels. The language of section 4(a) should be clarified accordingly. Such a change would be in accord with the scope of applicability set out in the PTSA of 1978 in section 5 thereof. In our prepared testimony, we have set forth the specific provisions that should be incorporated into that section of the bill.

In section 5 of the PTSA, there is a provision which stipulates for which vessels the statute applies and for which vessels you have exceptions. If there are additional exceptions for particular classes of vessels, that could be addressed in an exception section. That would be appropriate for the purposes of this implementing legislation.

Another point concerns section 5(d) of the proposed bill. Section 5(d) has the language "clear grounds." It should not be interpreted in a restrictive fashion. Officers inspecting ships carrying foreign certificates under the 1973 MARPOL should not feel excessively constrained in going beyond the certificate in their inspections. The maritime transport business being what it is, there is a great need for our Coast Guard officers to be able to ferret out any potentially dangerous defects in ships using our ports.

Another concern of the environmental organizations concerns waste reception facilities. We would urge that annex II and the other regulations of the convention be implemented as quickly as feasible, along with annex I, without waiting for their official entry into force. It should be noted that resolution 1 of the TSPP invites countries to implement the convention regulations before their official entry into force.

I concur in the remarks made earlier by Admiral Bell and by Admiral Benkert concerning the ability of the industry to take on this task. The environmental community on many occasions has looked at environmental provisions and has been, I think, forthright and reasonable in stating that the costs of doing business should be internalized and passed on to the consumer. In this area as well, we believe it would be appropriate for the costs of providing the necessary waste reception facilities to ultimately borne by the consumer and to be internalized in the costs which the industry bears.

Another point concerns section 6(b). We recommend that along with the number and types of seagoing ships using a port or terminal, the adequacy of waste treatment available should also be explicitly mentioned as a criterion for the Secretary to consider in determining the overall adequacy of reception facilities.

It is my understanding that the earlier bill—I think it was H.R. 10390—had no mention in it of consultation with EPA, and still does not have any statement concerning the adequacy of waste treatment facilities. We think that this bill is an improvement over the earlier bill, because it does explicitly mention the need to consult with EPA. But I think it would be further strengthened if we had language that specifically addresses the adequacy standard.

In that regard, we believe that it is essential that, under section 3005 of the Resource Conservation and Recovery Act, there be final certification by EPA of those facilities before they become operational.

Regarding section 7(a) of the proposed bill, we wish to emphasize that scienter is not mentioned in article 8 in the 1973 convention concerning reports on accidents involving harmful substances. Introducing scienter is an concept so frought with negligence and carelessness that it will only unnecessarily complicate the implementation of the convention. We have recommended language that we feel would be more appropriate in addressing the concerns set forth in section 7 of the bill.

Another point concerns section 8. We commend the Coast Guard and the subcommittee for drafting regulations which will effectively implement MARPOL. The detection of violations and the enforcement of marine pollution regulations have always been the weakest link in the success of the regulations. These are costly activities, and we urge this subcommittee and the Congress to give the Coast Guard the necessary authorizations and appropriations to carry out such a task.

Another concern that we have is minor, but I would like to briefly state it. Section 8(a), should not be read to limit the Secretary to joint, cooperative actions with other parties. Instead, the provision should serve to encourage the Secretary to use all appropriate and practical measures for unilateral detection and environmental monitoring. In my prepared statement, I have set forth suggested language which we believe will accomplish that objective.

Concerning section 8(b), we believe that it is important that some explicit provision be made for reporting violations to IMCO, since such information is vital to the effective functioning of that international organization. Article 6(4) of the MARPOL Convention explicitly provides for such reporting to IMCO. While this bill does indicate that the Secretary shall comply with the requirements of MARPOL, our suggestion would be that there be explicit language that you must report to IMCO. Language containing that provision is set forth in my prepared testimony.

Another item concerns the handling of penalties. We fully support the exercise of powers by the United States as a coastal state to enforce MARPOL. These powers, found in section 9, are fully compatible with the evolving provisions of the draft LOS treaty.

In section 9(f), we recommend that these enforcement powers not be referred to another country party to MARPOL Protocol unless that state (1) has enacted regulations imposing equally severe penalties to those prescribed under United States law, and (2) has a record of enforcement. Thus, line 20, page 14 of this proposed bill that is before the subcommittee should be altered to read that, "required or authorized by this section, provided that that country has equally severe penalties and a satisfactory record of enforcement for the particular violation involved."

A final point deals with the annexes III through V. We believe that the United States should substantively review and expeditiously consider adopting the optional annexes to the convention.

In conclusion, and most importantly, we strongly urge this subcommittee, other members of the House, and the administration to actively solicit and encourage Senate ratification of the MARPOL Protocol as quickly as possible. Since the U.S. initiatives played such an important role in prompting the international community to convene both the MARPOL 1973 Convention and the TSPP Conference, it is imperative that the United States follow through on those initiatives to their logical conclusion. It is our understanding that the protocol could well receive the required number of ratifications by other countries during 1980 and that the tonnage requirement is also likely to be met, thus allowing it to enter into force.

The earlier statements by Norman Wulf, the Acting Deputy Assistant Secretary of State, implied that a number of countries were waiting on the United States to take action. I have no independent information from which I could say he is wrong, but in some circulars recently received from IMCO, it is our understanding that the necessary number of countries with the adequate amount of tonnage could well ratify this convention within 1980, thereby allowing it to come into force by 1981.

We believe it would be an embarrassment for the United States not to have ratified the protocol prior to its entry into force. Moreover, such dilatory behavior would diminish, if it has not already, the United States opportunity to promote environmentally sound maritime safety and marine pollution prevention measures by the international community of coastal states.

This concludes my prepared statement. I would be happy to answer any questions you might have. Thank you.

Mr. RATTI. Thank you very much, Mr. Curtis, for your very complete statement; we appreciate it. We will, of course, give very careful consideration to all of your suggestions. We have a couple of questions.

Mr. Cassani?

Mr. Cassani. Mr. Curtis, do you have any information on the Senate thinking on ratification? For example, do they want to see this implementing legislation first, or are they willing to go ahead and provide advice and consent first?

Mr. CURTIS. I do not have the answer to that, Mr. Cassani. I would be glad to offer to give you the environmental community's views of that after having contacted some key people within the next day or so.

Mr. CASSANI. Thank you.

Mr. Ratti. Captain Bruce?

Mr. Bruce. No questions.

Mr. Ratti. Mr. Smith?

Mr. Smith. No questions.

Mr. Ratti. Thank you very much, Mr. Curtis; we appreciate your testimony.

[The following was received for the record:]

Statement of Clifton E. Curtis on Behalf of American Littoral Society, Clean Water Action Project, Defenders of Wildlife, Environmental Defense Fund, Environmental Policy Center, Friends of the Earth, Fund for Animals, National Parks and Conservation Association, National Wildlife Federation, Natural Resources Defense Council, Oceanic Society, Sierra Club, Society for Animal Protective Legislation, and Wilderness Society

I am Clifton Curtis, a lawyer with the Center for Law and Social Policy, a public-interest law firm in Washington, D.C.[1] I appreciate the opportunity to appear before your committee today to provide the views of fourteen national environmental organizations—American Littoral Society, Clean Water Action Project, Defenders of Wildlife, Environmental Defense Fund, Environmental Policy Center, Friends of the Earth, Fund for Animals, National Parks and Conservation Association, National Wildlife Federation, Natural Resources Defense Council, Oceanic Society, Sierra Club, Society for Animal Protective Legislation, and Wilderness Society (collectively referred to as the "environmental organizations")—concerning H.R. 6665, a bill to implement the 1978 MARPOL Protocol.

The Center for Law and Social Policy has been deeply involved in efforts to control marine pollution for over six years. Center attorneys were among the U.S. delegates to both the 1973 Marine Pollution Convention and the 1978 International Marine Consultative Organization (IMCO) Conference on Tanker Safety and Pollution Prevention (TSPP). We have stressed the need for a comprehensive approach to the regulation of tanker design, equipment and operations in order to reduce both accidental and operational marine pollution.

At the outset, I wish to express the appreciation of the environmental organizations for the work the Coast Guard has done in preparing this legislation and bringing it before this subcommittee. This legislation is the result of over three years of work that began with the so-called Carter Initiatives of March 1977. It was as a direct result of these initiatives that the Inter-governmental Maritime Consulative Organization convened the 1978 Tanker Safety and Pollution Prevention (TSPP) Conference. With the United States taking such a lead role in this Conference, it is gratifying that we are moving towards complete implementation of the 1978 Marine Pollution Protocol. As a matter of priority, therefore, we would urge the government to deposit its instrument of ratification with IMCO as soon as possible.

In this context we wish to emphasize to this Subcommittee the useful role that proposed domestic American actions have had in the past in prompting the international community to enact measures controlling marine pollution caused by vessels transporting oil or noxious substances. In addiition, through the United States' active participation in the work of IMCO and its committees, continuous upgrading of international standards can be encouraged. We recommend that the Congress continue to monitor progress internationally and at home as there is still much work to be done in so many areas. This was forcefully brought home to the participants at the 1978 TSPP conference and to the world public by the disastrous grounding of the *Amoco Cadiz* just weeks after the TSPP conference had concluded. That grounding pointed to further gaps in the legal regime, such as the nature of salvage operations.

The present proposed legislation in Section 4(b) provides that "The Secretary shall prescribe any necessary or desired regulations to carry out the provisions of the MARPOL Protocol or this Act." The environmental organizations look forward to advising the Secretary of the Department of Transportation on future regulations which will implement MARPOL and this Act. We would point out, however, that nothing in MARPOL prevents the United States from enacting more stringent regulations both for vessels engaged in domestic trade and for international vessels visiting its ports. This power is specifically granted in the Port and Tanker Safety Act of 1978, stating that (46 U.S.C. 391a(6)(A)): "[t]he Secretaary may issue differing regulations applicable to vessels engaged in the domestic trade, and may also issue regulations that exceed standards agreed upon internationally."

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[1] Michael M'Gonigle, a fellow with the Center's International Project, assisted in the preparation of this testimony. Mr. M'Gonigle recently coauthored "Pollution, Politics and International Law," the definitive work on the problems of international regulation of pollution caused by tankers at sea. Bruce M. Rich, a Univerity of Pennsylvania law student intern in the Center's clinical program, also assisted in preparing this testimony.

We have a number of suggestions concerning specific sections of H.R. 6665 which are briefly discussed below:

(1) Section 3(c) would be improved by changing it to correspond to the original wording of Article (5)(4) of the 1973 MARPOL Convention. The original terminology is more direct in ensuring that non-parties to the convention will gain no benefit from non-ratification as the convention itself will be applied to them. We suggest that Section 3(c) be amended as follows: "With respect to the ships of a country not a party to the MARPOL Protocol, while such ships in the marine environment, the Secretary shall apply the requirements of the convention as may be necessary to ensure that no more favorable treatment is given to such ships."

(2) With respect to Section 4(a), there has been some confusion in the past about the definition of "seagoing ships". (See Hearing before the Subcommittee on Coast Guard and Navigation of the Committee on Merchant Marine and Fisheries, June 15, 1978, Statement of Captain John R. Kirkland, Serial No. 95-29 p. 501). We recommend that, as a minimum, the standards of the MARPOL Protocol and of Annexes I and II be applicable not only to all seagoing ships but also to ships engaged in domestic trade, including Great Lakes vessels. The language of Section 4(a) should be clarified accordingly. Such a change would be in accord with the scope of applicability set out in the Port and Tanker Safety act of 1978, Section 5 (46 U.S.C. 391(a)(3), (4) and (5)):

"(3) Applicability.—Except as provided in subsections (4) and (5), this section shall apply to any vessel—

"(A) regardless of tonnage, size, or manner of propulsion;

"(B) whether self-propelled or not;

"(C) whether carrying freight or passengers for hire or not;

"(D) which is a vessel of the United States, or which operates on or enters the navigable waters of the United States, or which transfers oil or hazardous materials in any port or place subject to the jurisdiction of the United States; and

"(E) which carries oil or any hazardous materials in bulk as cargo or in residue. Any such vessel shall be deemed to be a steam vessel for the purposes of title 52 of the Revised Statutes of the United States and shall be subject to the provisions thereof.

((4) Exceptions.—This section shall not apply to—

"(A) any public vessel; or

"(B) any vessel or not more than 500 gross tons, documented in the service of oil exploitation, which is not a tanker and which would be subject to this section only because of the transfer of fuel from fuel supply tanks of such vessels to offshore drilling or production facilities, if the crew member in charge of such transfer is certified as a tankerman: *Provided*, That if the crew member in charge of the transfer of fuel holds a valid license as a master, mate, pilot, engineer or operator, it shall not be necessary for the crew member also to be certificated as a tankerman or have a tankerman endorsement on his license; or

"(C) cannery tenders, fishing tenders, and fishing vessels of not more than 500 gross tons, used in the salmon or crab fisheries of the State of Oregon, Washington and Alaska, when engaged exclusively in the fishing industry; or

"(D) any foreign vessel, not destined for, or departing from, a port or place subject to the jurisdiction of the United States, that is in innocent passage through the territorial sea of the United States or in transit through the navigable waters of the United Sates which form a part of an international strait.

"(5) Fish Processing Vessels.—This section shall not apply to vessels or not more than 5,000 gross tons used in the processing and assembling of fishery products in the fisheries of the States of Oregon, Washington, and Alaska, and such vessels shall be allowed to have on board flammable or combustible liquid cargo in bulk to the extent authorized, and upon such conditions as may be required, by regulations issued by the Secretary."

(3) With respect to Section 5(d), "clear grounds" (p. 6, line 16) should not be interpreted in a restrictive fashion. Officers inspecting ships carrying foreign certificates under the 1973 Marine Pollution Prevention Convention should not feel excessively constrained in going beyond the certificate in their inspections. The maritime transport business being what it is, there is a great need for our Coast Guard officers to be able to ferret out any potential dangerous defects in ships using our ports.

(4) Concerning waste reception facilities, we urge that Annex II and the other regulations of the convention be implemented as quickly as feasible, along with Annex I, without waiting for their official entry into force. It should be noted that Resolution 1 of the TSPP Conference invites countries to implement the convention regulations before their official entry into force.

(5) With respect to Section 6(b), we recommend that, along with the number and types of seagoing ships using a port or terminal, the adequacy of waste treatment available also be explicitly mentioned as a criterion for the Secretary to consider in determining the overall adequacy of reception facilities.

(6) Regarding Section 7(a) we wish to emphasize that scienter is not mentioned in Article 8 in the 1973 Convention concerning reports on incidents involving harmful substances. Introducing scienter in an area so fraught with negligence and carelessness will only unnecessarily complicate implementation of the Convention. Thus, we recommend that Section 7(a) be altered as follows: "The master or other person in charge of a ship shall report incidents as quickly as possible to the Secretary in the manner prescribed by Article 8 of the Convention."

(7) With regard to Section 8, we recommend the Coast Guard and the Subcommittee for drafting regulations which will effectively implement MARPOL. The detection of violations and the enforcement of marine pollution regulations have always been the weakest links in the success of these regulations. These are costly activities, and we urge this Subcommittee and the Congress to give the Coast Guard the necessary authorizations and appropriations to carry out such tasks.

(8) Although this may seem to be a minor point, Section 8(a) should not be read to limit the Secretary to joint, cooperative actions with other parties. Instead, this provision should serve to encourage the Secretary to "use all appropriate and practical measures" for unilateral detection and environmental monitoring. Article 6(2) of the MARPOL convention explicitly provides for such unilateral actions. Accordingly, Section 8(a) (p. 10, line 17) might be altered so that "To that end", reads "To further the ends of detection and enforcement,".

(9) Concerning Section 8(b), we believe it is important that some explicit provision be made for reporting violations to IMCO, since such information is vital to the effective functioning of that international organization. Article 6(4) of the MARPOL Convention explicitly provides for such motification reporting to IMCO. Accordingly, the sentence on line 8–11, page 11, should be altered to read as follows: "If the initial evidence was provided by a party to MARPOL Protocal, the Secretary, acting through the Secretary of State, shall inform that party and IMCO of the action taken or proposed."

(10) We fully support the exercise of powers by the United States as a coastal state to enforce MARPOL. These powers, found in Section 9, are fully compatible with the evolving provisions of the draft law of the Sea Treaty. In Section 9(f), we recommend that these enforcement powers not be referred to another country (flag state) party to the MARPOL Protocol unless that State has enacted regulations imposing equally severe penalties to those prescribed under the United States law. Thus, line 20, page 14, should be altered to read as follows: "required or authorized by this Section, provided that country has equally severe penalties for the particular violation involved".

(11) Finally, the environmental organizations urge the United States to substantively review and consider adopting the optional annexes to the Convention (Annexes III–V) as early as possible.

In conclusion, and most importantly, we strongly urge this Subcommittee, other members of the House, and the Administration, to actively solicit and encourage Senate ratification of the MARPOL Protocol as quickly as possible. Since the United States initiatives played such an important role in prompting the iternational community to convene both the MARPOL 1973 Convention and the TSPP Conference, it is imperative that the United States follow through on those initiatives by ratifying the Protocol.

It is our understanding that the Protocol could well receive the required number of ratifications (15) by other countries during 1980, and that the tonnage requirement (50 percent of the world's gross tonnage of merchant shipping) is also likely to be met, thus allowing it to enter into force. It would be an embarrassment for the United States not to have ratified the Protocol prior to its entry into force. Moreover, such dilatory behavior would diminish (if it hasn't already) the United States opportunities to promote environmentally sound maritime safety and marine pollution prevention measures by the international community of coastal states.

This concludes my prepared statement. I will be happy to respond to any questions you may have. Thank you.

Mr. RATTI. The hearing is adjourned.

[The following was submitted for the record:]

Statement of John Prokop, President, Independent Liquid Terminals Association

Mr. Chairman, members of the Committee, we appreciate very much this opportunity to submit for the record this statement of ILTA's comments on this important legislation to prevent pollution from ships.

The Independent Liquid Terminals Association is a national trade association which represents commercial operators who provide bulk liquid transfer services and who lease bulk liquid storage tanks to commodity owners.

ILTA members operate 170 deepwater and barge terminals in 34 states with a capacity at any given time to hold about 125 million barrels of bulk liquid commodities. It is estimated that these ILTA terminals handle annually over 500,000,000 barrels of bulk liquid commodities essential to American business and hence, the American consumer.

These terminals interconnect with and provide services to the various modes of bulk liquid carriers, oil tankers, chemical parcel tankers, tank barges, tank trucks, tank rail cars, and pipelines. The commodities handled include a wide variety of chemicals, crude oil, refined petroleum products, animal fats and oils, molasses, and vegetable oils.

Terminal facilities consist of docks for tankers and tank barges, pumps and equipment for transfering liquids to and from carrier modes, piping and storage tanks, and sometimes pipelines to purchasers and users of products.

ILTA members usually do not own the products stored in the tanks at their facilities. The products are owned by oil companies, chemical companies, commodity brokers, manufacturers, and utilities. The services that ILTA members furnish facilitate commodity transactions in the national and international transportation and distribution system. ILTA member companies furnish transfer and storage services in locations where commodity owners may have no facilities, or where they may need supplementary storage and services.

ILTA SUPPORTS THE GENERAL CONCEPTS SET FORTH IN H.R. 6665

ILTA supports the general concepts set forth in H.R. 6665, a bill to implement the International Convention for the Prevention of Pollution From Ships, 1973 (known as Marpol '73). Our remarks will focus on U.S. Coast Guard requirements for terminals and port facilities to collect vessel tank cleanings or wastes and on the relationship of EPA regulations to certify terminals and port facilities to collect wastes.

Two years ago on June 15, 1980, ILTA appeared before this Subcommittee to express our concern about the impact that the proposed requirement to dispose of certain vessel wastes ashore might have on bulk terminals.

At that time, ILTA believed that the Annex II provisions in the 1978 Amendments to Marpol 1973 would require that a terminal receiving a vessel and offloading certain Category A chemicals would also have to offload any residue from those chemicals which remained in the vessel's cargo tanks.

Our objection was that the requirement was an "imperative command" that would make bulk terminals engage in a business—that of waste collection—which the majority of our members did not particularly want to engage in.

If bulk liquid terminals had to accept these wastes, we believed the hazardous waste control regulations which were being proposed by the U.S. Environmental Protection Agency at that time, would have imposed additional, but unnecessarily stringent and expensive requirements upon bulk liquid terminals which our members did not want to incur.

ILTA'S BASIC CONCERNS IN 1978 WERE THE INCONSISTENCY OF EPA REGULATIONS COVERING CARGO ON ONE HAND AND VESSEL WASTES ON THE OTHER, STRINGENT REQUIREMENTS AND EXHORBITANT COSTS OF COMPLIANCE, AND THAT ANNEX II APPEARED TO BE THE SOLE FACTOR BRINGING US UNDER THE EPA WASTE CONTROL REQUIREMENTS

We are grateful to this Subcommittee for postponing approval of this legislation in 1978 until ILTA could analyze and comment on the EPA proposed hazardous waste regulations and request more moderate and less expensive requirements.

Our reason for making this request to EPA was, first, that if bulk liquid terminals were going to receive a water-chemical waste, the EPA requirements for terminals to receive the mixture should not be more stringent nor more costly than EPA and the Coast Guard requirements to offload and store the 100 percent concentrate chemical cargo.

The 100 percent concentrate chemical cargo may be stored at a facility in several 10,000 or 20,000 gallon storage tanks. It is estimated that the amount of water-chemical mixture resulting from each vessel tank cleaning will at a minimum be 964 gallons (about 264 gallons of chemical and 700 gallons of water). This mixture would be sent to an EPA certified waster disposal as soon as possible.

Secondly, bulk liquid terminals did not want to have to embark upon any complicated and expensive facility modifications which EPA, which wants to create a "riskless" society, might declare necessary to handle wastes. Wastes also would have to be retained on site until the customer whose product generated the waste or the terminal arranged for disposal at an EPA certified waste disposal site.

The costs of compliance might be exhorbitant in relations to the small volume of wastes handled and the possibility they might be incompatible. The cost would have to be passed on to the commodity owner and eventually to the public consumer.

Thirdly, ILTA members then were (and are still) quite concerned about the EPA program to upgrade existing hazardous waste dump sites and create new ones. The new regulations and the manner in which the program is being handled may result in the closing down of more sites than in site upgrading. If certified waste disposal sites were not available, that would mean that the wastes would have to remain on terminal property until a certified site could be found or until an incinerator ship or other process became available to dispose of them in an environmentally approved manner. Thus, provision would have had to be made for longer-term waste accumulation or storage on terminal property.

U.S. COAST GUARD EFFORTS REDUCE IMPACT OF ANNEX II ON FACILITIES

Since the last time ILTA testified on Annex II, the U.S. Coast Guard personnel who were involved in the development of Annex II provisions at meetings of the Intergovernmental Maritime Consultative Organization, were substantially successful in their endeavor to reduce the impact of the "imperative command" that terminals offload vessel chemical wastes.

According to the U.S. Coast Guard, under the now modified Annex II, bulk liquid terminals that are not properly equipped to receive vessel wastes, or which do not have an EPA or state hazardous waste control permit to do so, could still offload any chemical cargo listed in Annex II, including Category A cargos. This could be accomplished by having the vessel agent or terminal arrange for a certified hazardous waste transport company to provide a tank truck or trucks to receive the vessel wastes. (Not all facilities are able to accommodate such waste trucks.) Another alternative is for the vessel to keep the chemical wastes aboard in slop tanks and to discharge them at a waste reception facility at another port.

Also, investigations by Coast Guard personnel to portray the actual demand upon bulk liquid terminals to provide this waste reception service seems to indicate that only a few of the listed chemicals are transported by vessel in bulk, and that the volumes transported annually are not that substantial.

The Coast Guard also had determined that modern cargo pumping systems aboard new chemical tankers leave only about one cubic meter, or approximately 264 gallons of residue in the vessel's tank. The Coast Guard says tests indicate that about 99 percent of this residue could be cleaned from the tank with one turn of a butterworth machine. That mechanical operation would involve a high pressure spray of about 700 gallons of water into the vessel tanks.

This short butterworth process would result in a chemical-water mixture of about 964 gallons, or at approximately 8.33 pounds of water per gallon, about 8030.12 pounds of a toxic waste mixture might have to come ashore. This is equivalent to about 3.65 metric tons of waste.

THE COAST GUARD MUST PROTECT SHORE FACILITIES IN ITS REGULATIONS

We assume that the U.S. Coast Guard assessment of the manner in which vessel chemical wastes will be handled is accurate. Therefore, may we suggest that if and when Annex II is enacted into U.S. Law, that in developing regulations thereunder, the Coast Guard "spell out" provisions for appropriate alternative vessel waste handling procedures. Either tank truck collection or vessel backhauling of wastes should be permissible when a shoreside facility is unable to offload vessel wastes because: (1) it does not have waste handling capability; (2) it has waste handling capability, but its waste tanks are full and it is unable to obtain a certified waste disposal facility to receive these wastes; (3) it does not have waste handling capability or capacity, and tank trucks cannot be used at that facility to collect vessel wastes; and (4) the EPA or a state has not granted the shoreside facility a permit to receive vessel wastes.

U.S. EPA AND STATE HAZARDOUS WASTE REGULATIONS WILL HAVE A SIGNIFICANT IMPACT ON VESSELS' ABILITY TO SEND WASTES ASHORE AND TERMINALS' ABILITY TO RECEIVE THEM

The hazardous waste regulations that EPA has finally proposed are substantially different than those the agency was proposing in 1978 when ILTA first requested this Subcommittee to consider the impact the regulations would have on terminals required to receive vessel wastes under Annex II provisions. These changes in turn have caused ILTA to substantially change its postition and its response to both Annex II and the EPA regulations.

The new EPA regulations are still quite controversial. Despite a court order requiring publication of the complete regulations, it will be several years before the complete regulations affecting ILTA members are available.

Those portions of the regulations which are available—Phase I of three phases—were released to the press and industry on May 5, 1980. On May 19, 1980, they were published in the Federal Register as Book 2 of three books published that day.

The copy of the regulations released to industry on May 5, was typed double-space on both sides of a page, and measured 5½ inches thick. The Federal Register edition of May 19, Book II, must be read together with Book III of that day covering Consolidated Permits. A combined edition of these two books sent to us by the EPA totals 522 pages of explanation and regulatory text. This was the most lengthy single regulation ever published by any government agency.

These EPA regulations published on May 19, are not complete. Additional phases are to be published later. We are trying to read, interpret and understand the regulations. The EPA is attempting to help us and other industries, but the agency itself is having as difficult a time as we are because the EPA staff is just learning about the operations of the industries the regulations apply to.

Two important areas in which the EPA hazardous waste regulations will have an impact on bulk liquid terminals and ships under both Annex I (oily wastes) and Annex II are as follows:

"(1) *Waste Manifest System.*—The EPA may declare the vessel the generator of wastes, thereby requiring that the vessel have analyzed any wastes it proposes to send ashore. Analysis would take time, extend a vessel's laytime, and possibly tie up docks. As a matter of fact, the way the regulations are now written, the interpretation would have to be that a vessel is the waste generator. The EPA regulations do not claim to regulate vessels, but simply to regulate every generator of waste in U.S. jurisdiction.

"(2) *EPA Waste Permitting Programs.*—The Resource Conservation and Recovery Act of 1976, under which EPA has promulgated its hazardous waste control regulations, provides for states to implement identical or even more stringent waste control programs. EPA plans to turn its small waste generator program over to the states as well as permitting programs. It is possible that a state or locality will not grant a terminal a waste reception or storage permit. Conceivably, a terminal that needs to offload vessel wastes in order to load export cargo aboard for backhaul purposes may not be able to offload the wastes. However, it would appear that the vessel could use some of its cargo tanks as slop tanks to solve the problem."

An explanation of how we believe these EPA regulations would affect bulk liquid terminals and their handling of vessel wastes is attached.

THE EPA HAS REVISED ITS NEW HAZARDOUS WASTE REGULATIONS SO THAT IT HAS ALREADY DETERMINED THAT BULK LIQUID TERMINALS ARE HAZARDOUS WASTE TREATMENT AND STORAGE FACILITIES

With respect to the revisions EPA has made in the regulations since proposed in 1978, interpretations which need to be made by the agency, and the uncertainties caused by the as-yet-unpublished phases II and III of the waste storage facility provisions, and new interpretations of the regulations by the agency, lead ILTA to conclude that regardless of whether a bulk liquid terminal receives chemical wastes from vessel tanks, the EPA for other reasons has already determined that they are hazardous waste storage and treatment facilities.

The EPA regulations require that any facility which has handled a waste in the past, presently handles waste, or may handle waste in the future, register with the agency by August 14, 1980, as a "hazardous waste management facility."

If a port or facility anticipates that it will handle and receive wastes from vessels or any other source, it must file an application for a permit to be a hazardous waste treatment, storage, or disposal facility.

After this, the EPA in implementing phases II and III of its waste storage facility regulations, will determine whether, and how, they apply to bulk liquid terminals and other industries. If the waste storage facility regulations or portions of them don't apply, a facility need no longer comply with them (possibly after having spent time and money to do so during the "interim status" period).

However, if a company initially believes that the EPA hazardous waste storage facility regulations do not cover it, and it does not register with the agency by August 14, 1980, and then subsequently the agency determines that the hazardous waste storage regulations do apply, then the agency alleges it can severely punish any such company which did not register by the specified date.

ILTA JUNE 12 MEETING WITH USCG, EPA, AND INDUSTRY REPRESENTATIVES

In order to eliminate as much uncertainty as possible about the impact of Annex II requirements on bulk liquid terminals and to determine the relationship to EPA hazardous waste regulations, we requested that representatives of the Coast Guard and the EPA, and other industry representatives, meet with us on June 12, 1980.

At this meeting we were informed that certain provisions or sections of the EPA regulations may or may not apply to bulk liquid terminals. We were informed that possibly bulk liquid storage facilities would instantly become waste storage facilities the moment they received one drop or more of waste from vessels. We were informed that if this interpretation were followed by EPA, it meant that bulk liquid terminals did not have 90 days to locate a certified hazardous waste facility and to ship the waste to it. In effect, we were told that the bulk liquid terminal would have to be certified by EPA or a state government implementing the EPA program, as a certified waste storage facility.

The EPA said that in any instance in which the terminal did not generate the waste, that it was acting as a waste storage facility.

If the bulk liquid terminal were actually generating the waste, or if the agency for any reason designated the terminal as the generator of waste, the terminal would have 90 days in which to find a qualified waste site, have the waste analyzed, and have it removed from terminal property to the site.

EPA says a terminal would be considered a generator if any of its operational processes initiated the creation of a new waste or it mixed together wastes from various sources, including any of its own. If a terminal accumulated 2.2 pounds or more of substances on the EPA List designated as "acute" at any time, or 2,204.6 pounds of substances EPA has designated as "toxic," or 2,204.6 pounds of diluted substances (such as water-chemical mixtures of "acute" or "toxic" substances) within a calendar month, the 90-day "removal time period" would begin tolling.

If the waste remained on the property after 90 days, and the facility was not certified by EPA as a hazardous waste storage facility, EPA possibly could close down operation of the facility, order the removal of the waste (if possible) at the whatever cost to the owner, and impose fines.

If a terminal generated less than any of the amounts listed above, the 90-day removal period would not begin tolling. If any other source generates any amount of waste and the terminal receives it, the terminal would instantly become a hazardous waste storage site.

It would appear that the EPA policy is to make every business which in any way handles commercial chemcial products register as a hazardous waste management facility and to convert as many as it is eventually determined is necessary into hazardous waste storage or disposal facilities.

This policy has been expressed publicly by other government officials. The purpose is to confine storage and disposal of wastes to sites at which they are generated, to preclude a substantial and sudden increase in "permitted" transportation of wastes to avoid accidents, and to allow for the upgrading of existing sites and the development of as many as 130 new certified sites around the nation.

CONCLUSION

The net result is that the Annex II requirement, which concerned bulk liquid terminals so much in 1978 is no longer the sole factor as it then appeared to be in determining whether or not ILTA would be subject to the EPA hazardous waste regulations. Many other factors, including whether a terminal has on premises any process for treating or accumulating wastes of its own, including simple "oily water separators," would seem to impose the full brunt of the EPA regulations on bulk liquid terminals.

Under the EPA Phase II portion of the regulations, it is possible that the EPA may revise the regulations and how they apply to bulk liquid terminals. Whether the regulations would be made reasonable or more difficult is not ascertainable.

It is possible that if ILTA petitions EPA, that the agency may recognize that a simple manifest system which would permit bulk liquid terminals to retain wastes on site in EPA or DOT approved containers until a full shipment could be accumulated and a certified disposal site found which will accept the waste, would be the easiest and least expensive way in which to handle, track, and control hazardous wastes.

However, we do not have very high hopes along those lines. The EPA fears very much that the public concern that it has aroused about improper and abandoned waste sites will work against EPA and state efforts to upgrade and create badly needed new waste sites. Such local opposition has already materialized in some states and caused the state and federal government to abandon new waste site projects. EPA has even had to make substantial grants to local groups to attempt to educate and persuade the public that it is in their best interest not to oppose new EPA certified waste disposal sites.

We believe that EPA, which is dedicated to creating a "risk free" society, and which is very uncertain about how effective its waste program will be or how rapidly it might be implemented, feels that it would be most provident if as many facilities which are generating or accumulating wastes, be modified into waste storage facilities in the event all the certified sites EPA estimates the nation needs do not materialize.

If bulk liquid terminals are designated waste storage facilities, then would they be required to post the $5 million post-closure bond? (It makes money available to take care of shut-down, abandoned, or bankrupt facilities.)

That question, and many others which remain unanswered by EPA, poses a dilemma for industry. We are in the unfortunate position of having to wait to see what EPA plans to do.

Risk evaluation is a difficult task and it places a great burden on the person or agency assigned the task. EPA has publicly stated that if it has to err, it will err on the side of protection of the public and the environment. But we hope that this does not become a euphemism for inexperience or a protective device whereby, if environmental incidents do occur in the future, the agency can absolve itself of any criticism by saying that it imposed the most expensive and stringent requirements it could possibly conceive.

We believe that the task of waste handling and control is being made more complicated and expensive than it needs to be. Regardless, the ILTA members will attempt to achieve compliance with the EPA regulations and eventually with any which are promulgated as a result of enactment into U.S. law of Annex II provisions. We hope we can do this with a minimum of consternation and as economically as possible, for both our own and the public's interest.

We sincerely appreciate the Subcommittee's concern over the problem terminals, ports, and other shoreside reception facilities will encounter in handling wastes from vessel and other sources generated as a result of national and international transportation and distribution of commodities. We thank you very much for affording us this opportunity to provide this information for the record.

D-R-A-F-T

June 19, 1980

An Analysis For Marine Bulk Liquid Terminals of the Compatibility of USCG Requirements For Vessel Oily & Chemical Waste Reception Facilities

with

EPA Regulations For the Handling, Transfer, Storage, and Disposal of Hazardous Wastes

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Concerns of the Independent Liquid Terminals Association - (202) 659-2301

The 1973 Maritime Pollution Convention (Marpol '73) is an international treaty or agreement to reduce and eliminate pollution from vessels.

Among the 1978 Amendments to Marpol '73 are Annex I (oil) and Annex II (chemicals). These are additional efforts to further reduce vessel pollution. Nations party to the convention would be required to develop shoreside reception facilities to receive vessel oily and certain chemical wastes from vessel cargo tanks.

A terminal receiving a vessel which generates an Annex II chemical cargo waste and which does not have a waste reception capability, would have to provide an acceptable alternative such as an DOT/EPA certified waste reception tank truck, or the vessel could retain tank cleanings on board in slop tanks until it reached a port with a waste reception facility willing to accept the wastes.

Also, a vessel which did not have a shoreside waste reception facility to service it, would not be permitted into a U.S. port (or the port of any country signing the convention) for cargo transfer purposes.

ILTA member companies usually do not own the chemicals and other products stored at their bulk liquid terminals. The chemicals are owned by terminal customers who lease tank storage space and who hire the terminal to provide liquid transfer services between the terminal and vessels, tank trucks, tank cars, and pipelines.

The significant service that ILTA member companies provide to industry and the economy is their ability to provide short-term bulk liquid commodity storage and handling to meet rapidly changing industrial and consumer market demands.

This important aspect of the nation's transportation and distribution system - our national ability to rapidly respond - could be drastically and unnecessarily adversely affected if arbitrary waste control rules make compliance difficult and costly. The rules should facilitate rather than hamper proper and affordable waste accumulation, transport, and disposal.

ILTA CONCERNS

Our concerns relate to whether adequate EPA certified waste disposal facilities will be available. If they are not, will bulk liquid terminals be forced to become hazardous waste storage facilities even for small amounts of waste? If so, will the waste regulation requirements be financially prohibitive, especially for small terminals? If the small waste-quantity generator program is turned over to the states for implementation, and they require permits for terminals to receive wastes, what kind of complications will this cause?

We would like to learn more about how the government plans to implement both the Annex II and RCRA waste control rules so that we are not caught in "Catch 22" situations where USCG requires us to receive a waste and the EPA or a state refuses a permit. Permit refusal could be used to keep a commercial product out of a state although it might be essential for some specific manufacturing or other process.

Presently, the Congress is considering enacting the Annex I and II requirements into U.S. law. They are included in H.R. 6665, a bill pending before Congress on which the House Merchant Marine Subcommittee on Coast Guard and Navigation recently held hearings and plans to markup and approve. The Senate Foreign Relations Committee is holding hearings June 20 on Marpol '73 listed as Exec. I 96-1 Treaty.

ILTA perceives the following (which may not be entirely accurate because of the complicated nature of the 522 pages of EPA hazardous waste regulations and because EPA has not had the opportunity to devote full time to explaining the aplication of its regulations to the bulk liquid terminals business):

1. EPA "ACUTE" WASTES AND ANNEX II CATEGORY "A" WASTES - "Acute" Wastes listed in EPA's Hazardous Waste Regulations (Fed. Reg., May 19, 1980) include some of the 45 wastes listed in the Annex II list. The EPA list includes 501 specific wastes or waste process streams. 118 wastes are designated "acute" (extremely hazardous); 383 are designated "hazardous."

*** A list of Annex II Category A and B wastes is attached and contains matching EPA "acute" waste numbers from the EPA list where matchable.

2. CHEMICAL CONCENTRATE WASTES - The offloading of 2.2 pounds (1 kilogram) of EPA "acute"/Annex II Category A wastes from a vessel in any period of time, according to EPA regulations, makes the vessel a waste generator.

   According to the way the EPA regulations are now worded, this would require prior registration by the vessel with EPA. However, there are other laws treaties which would seem to place the vessel under the jurisdiction of the U.S. Coast Guard. Administration of this aspect of waste handling is obviously a jurisdictional matter and process which must be worked out between EPA and the Coast Guard.

   In any event, it would appear that a shoreside facility would be in violation of the Resource Conservation and Recovery Act of 1976 and EPA hazardous waste regulations if it accepted wastes from a vessel without the vessel tendering a manifest attesting to the amount and type of waste being sent ashore. The EPA manifest system would require the vessel as a waste generator to have the waste analysed before transferring it ashore.

3. DILUTED CHEMICAL WASTES FROM VESSEL TANK CLEANING - U.S. Coast discussions with chemical tanker operators indicates that vessel wastes from bulk tanks are most likely to be removed by the butterworth process.

   Modern chemical tankers with the latest pump equipment will have only about 264 gallons of chemical residue remaining in a tank after pumping the cargo ashore. One turn of the high pressure water spray from a butterworth machine for one minute (at 700 gallons per minute) purportedly will remove 99% of this residue.

   The resulting water-chemical mixture from such a tank cleaning will amount to about 964 gallons.

4. GENERATING WASTE MIXTURES - EPA considers pure chemical concentrates to be "killers." Waste mixtures are not considered so lethal, so the standard is different.

   If the waste residue in any vessel's tank meets any of EPA's requirements for diluted waste mixtures -- toxicity, ignitability, corrosivity, or reactivity -- then 2,204.6 pounds (one metric ton) or more of the waste would place it in the waste category requiring use of a manifest system. (The minimum 964 gallons of waste mixture expected from cleaning one modern chemical vessel cargo tank weighs 8030.12 pounds or about 3.65 metric tons.)

   Again, it would appear that from the way the EPA regulations are written, the vessel as a waste generator must have the waste analyzed and initiate the manifest system which follows the waste from "cradle to grave."

5. RECEIVING WASTE CONCENTRATES - If a bulk liquid terminal or other onshore facility receives 2.2 pounds of the EPA "acute"/Annex II wastes within any period of time, the facility probably is required to have an EPA permit as a hazardous waste treatment, storage, or disposal facility.

   If the amount of these "acute"/Annex II wastes is less than 2.2 pounds, the only requirement on the facility is prior registration as a hazardous waste management facility and to retain the wastes according to EPA regulations.

   A manifest is not needed to transfer, transport, or store less than 2.2 pounds of "acute" wastes.

   If a terminal/onshore facility receives within a calendar month (a 30-day period) 2,204.6 pounds (1,000 kilograms) of any wastes listed as "toxic" in the EPA regulations, or a diluted waste mixture in the same volume which meets one of the four EPA tests for a hazardous waste, the facility probably is required to have an EPA permit as a hazardous waste treatment, storage, or disposal facility.

   A manifest is not needed to transfer, transport, or store less than 2,204.6 pounds (1 metric ton) of "toxic" wastes or a hazardous waste mixture.

   Foreign Wastes - If the wastes being transferred from a ship did not originate from tank cleaning in the U.S., but are foreign wastes, the terminal must notify the EPA Administrator four weeks in advance of receiving such wastes. See 40 CFR, §264.12 and §265.12.

6. COMBINING WASTES AT THE FACILITY - If the terminal combines the wastes it receives, in any amount, the terminal also becomes a generator and must begin the manifest system anew with its own EPA-assigned number because the mixing or combining of several wastes has created a new waste.

Annex II List of 45 Hazardous Chemical Substances from the 1978 Amendments to the 1973 Maritime Pollution Convention including U.S. EPA numerical designation for similar substances on its May 19, 1980 List of 118 "Acute" Substances, 40 CFR §261.33(e).

Annex II Category A	U.S. EPA
Acetone Cyanohydrin	- see P069
Acrolein	- P003
Carbon Disulphide	- P022
Creosote	- U051
Creosols	- U052
Cresylic Acid	- U054
Dichlorobenzenes	- U070, U071, U072
Naphthalene (molten)	- U165
Naphthenic Acids	
Phosphorus (elemental)	
Sodium Pentachlorophenate	
Tetraethyl Lead	- P110
Tetramethyl Lead	

Annex II Category B	U.S. EPA
Acrylonitrile	- U009
Alkylbenzene Sulfonate	
Allyl Alcohol	- P005
Ammonia (28% aqueous)	
Benzyl Chloride	- U017
Butyl Butyrate	
n-Butyraldehyde	
Butyric Acid	
Camphor Oil	
Carbon Tetrachloride	- see U211
Chloroform	
para-Chlorotoluene	
Crotonaldehyde	- U053
Dichloroethyl Ether	
D.D. Soil Fumigant	
Epichlorohydrin	
Ethylene Dibromide	
Ethylene Dichloride	
2-Ethyl, 3-Propyl Acrolein	
Hydrofluoric Acid	- (C, T) U134
Methylene Chloride	
2-Methyl, 5 Ethyl Pyridine	
Monochlorobenzene	
Pentachloroethylene	
Phenol	- U188
beta-Propiolactone	
Pyridine	
Toluene Diisocyanate	- U223
Trichloroethylene	- see U228
Tritolyl Phosphate	
Turpentine (Wood)	
Vinylidene Chloride	- U078

Note: An Annex II chemical with no EPA designation following it means that the identical Annex II chemical name was not found on the EPA hazardous chemical list. It is also possible that there are chemicals on the Annex II list that do not appear on the EPA list.

[Whereupon, at 11:25 a.m., the subcommittee was adjourned.]

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